Factors Influencing the Implementation of Agricultural Policy: A Case Study from Ghana's Cocoa Diseases and Pests Control (CODAPEC) Program

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Abstract

Implementations of public policies and programs have been the bane of developing countries. Ghana is no exception as past policy measures initiated to resuscitate the dwindling cocoa industry have been implemented with less success. The introduction of the Cocoa Diseases and Pests Control (CODAPEC) program has been unique from the earlier reforms. The article explores on this program using a case study research based on survey questionnaire data from 100 farmers in Bia District of Ghana. The analysis focuses on the contributory factors and the relative importance of these factors towards implementation of this agricultural program. Five main factors of success were identified. The results showed that all these factors mattered as they played different and important roles. However, three key successes of factors based on statistical evidence were the supply of skilled personnel, active participation of farmers in the education program and high quantity of agrochemicals supplied. The study recommends the creation of incentive systems to reduce cost of production, periodic review of the producer price of cocoa and the development of the private sector.

1. Introduction

Since independence, successive governments have fashioned out major agricultural policies especially in the 1980s to transform the cocoa subsector in Ghana. These initiatives have involved giving agricultural inputs (e.g. spraying machines and agrochemicals) to farmers on subsidized and credit basis. The broad objectives of these reforms have been to increase production and ensure fair standard of living for Ghanaians particularly rural households.

Unfortunately, many such productive policies fell short of expectations (Ghana Cocoa Board, 2011). Majority of evaluation studies blamed implementation process, in particular, with respect to the factors that increase probability of success.

In 2001, the Ghanaian government introduced the National Cocoa Diseases and Pests Control (CODAPEC) program popularly known as the Mass Cocoa Spraying Exercise; a productive policy to stimulate the peasant cocoa farmer to become more productive. The program involved the mass spraying of all cocoa farms affected by capsid and black pod disease, training of farmers and technical personnel on agronomics of pests and disease control among others free of charge (Ghana Cocoa Board, 2011). The program had the objectives of increasing cocoa yield to one million metric tonnes (MT) by the 2012/13 crop season and increase farmers' income. However, two years before the deadline, there was conformance with the program targets and standards with 1,004,194 MT recorded in the 2010/2011 cocoa season (Mensah, 2011). Consequently, the program contributed to the growth of the Ghanaian economy particularly the country's quest in attaining the Millennium Development Goal (MDG 1) through eradicating extreme poverty and hunger due to increase income of rural farmers (Breisinger et al., 2011). The Institute of Statistical, Social and Economic Research (ISSER, 2013) reports on the State of the Ghanaian Economy, for instance, observes that the average growth of 5.2% in the agricultural sector for the period (2001-2012) was due to huge expansion in the cocoa subsector, propelled largely by the government's productive intervention. The success chalked by CODAPEC program has been hailed by the international community and the stakeholders in agriculture with calls for the replication of the programme in other sectors of the Ghanaian economy.

There is no research, however, that investigate the implementation of the program and the associated factors. Few studies (Mengistie et al. 2015; Leite, 2016) have examined specifically agricultural programs implementation in developing countries and more importantly, the success factors in Ghana. The question remains: why has CODAPEC program been unique from the earlier reforms in the same turbulent and unpredictable policy environment that the previous public investments failed to meet their expectations? Are there specific factors which influence program implementation success? Using the best features of the top-down model, the purpose of this research is to quantitative identify the factors that influence implementation of CODAPEC program in the Bia district of Ghana. Knowledge of the factors that influence the implementation of the CODAPEC program has significant policy relevance. Understanding the multiple factors may assist policy makers both at the central and local levels in easing implementation restraints particularly initiatives such as agriculture program. Specifically, the study investigates the following questions: to what extent do the implementation of CODAPEC program explain its success? To determine the factors accounting for the effective and successful implementation of the program in the Bia district. Secondly, what are the relative importance of these factors?

The rest of the paper proceeds as follows: Section 2 provides theoretical background and develops the hypotheses concerning factors that influence program implementation success. Section 3 describes the research method and data for testing the hypotheses. Section 4 provides results and discussion, and Section 5 concludes by discussing the contribution of

this article to the implementation literature.

2. Research on Policy Implementation

Policy implementation refers to the transformation of a policy idea or statement of intent into action aimed at remedying societal problems. It asks the question about what was implemented and the circumstance, by whom, when, and how (Rodriquez et al., 2016). A deep understanding of implementation is particularly important for decision makers in the policy process because bridging the implementation 'gap' has often been considered as a solution for socio-economic development and poverty reduction. Theoretical underpinnings of implementation studies take its legacy from the Great Society Comprehensive Initiatives in the 1960s, when there was attempt to apply scientific ideas to the policy process (Hill and Hupe, 2002). Since then, vast literature has examined the critical process and factors that lead to implementation success and failures.

Initially, implementation research was largely considered as secondary to policy making, emphasizing that once a policy was introduced by a statue it will be implemented by itself once the required resources (funds, personnel, time, information, technical skills, and material logistics) are made available (Hupe and Hill, 2016). The idea was that constitution of the administrative machinery and civil bureaucracy coupled with the issuance of guidelines will logically translate policy decisions into action without taking cognizance of the fact that policy decisions are reshaped, redefined and even overturned (Bollens, 2018). This type of putting public policies into action is now referred to as the first-generation implementation research. Many of the earlier implementation studies were explorative and sought to investigate into how and why stated policy goals failed to transform into programs for the benefit of the society. It was concerned with how the statements of intents or policy initiative envisages by high level officials were subverted by various 'non-rational' bureaucratic factors during the implementation phase (De Spiegeleire et al.,2019). In the study of the Economic Development Administration (EDA) projects to decrease unemployment among ethnic minority in the Oakland, CA, Pressman and Wildavsky (1973) observed that the program success and impact depended on the existence of effective bargaining arenas' in terms of policy delivery. Their analysis showed how strong consideration and adaption to local conditions such as capacity, commitment, and cooperating policy implementation across different actors and agencies mould response to policy success. The works of the earlier scholars laid the foundation for further implementation studies. However, the first period of implementation studies has been criticized for lacking theoretical grounding and pessimistic conclusions regarding central decision-makers ability to puts its policies into practice (Goggin et al., 1990).

A second generation of implementation studies emerged in the 1980s and attempted at creating some kind of unified theory for empirical analysis. It concerned itself beyond the success or failure of implementation towards improved analysis of variables that could explain the impact of the implementation process (Schofield, 2001; Birkland, 2015). Scholarships to identify how the implementation flaws would be filled due to the type of implementation outcome and the uniqueness of the independent variables led to the

comparison between the top-down and bottom-up perspectives and their suggested syntheses (Goggin, 1986; Hill and Hupe, 2002).

The top-down model is in tune with the traditional system of governance and public sector organization, echoing introduction of policies at the top of the bureaucratic system (central level) and transmitted down a hierarchy to implementing authorities at the subnational level. Top-down scholars were concerned with the capacity of 'faithful' frontline workers to put into practice problem areas and their capacity to guide and limit the behaviour of the different actors involved in the process (Sabatier, 1986). The model is built around the argument that strong central power is critical in controlling and streamlining the peripheries to administer agreed upon goals; reflecting the belief that lower level managers are the impartial central conduits through which guidelines flow intact and unmediated (Kingfisher, 2013; Rod and Høybye, 2015).

The most broadened analytical model of the top-down was the one developed by Sabatier and Mazmanian (1980). Through a comparative study of the implementation process, the two scholars identified three broad categories of variables influencing the degree to which public policy goals can be attained. These are: the legal (statutory); the political (non-statutory); and tractability variables. These success criteria were developed into seventeen (17) independent conditions for effective implementation include committed and skilful implementing officials, financial resources, clear and consistent policy objectives, public support, and adequate causal theory. The problem with such list is that it is creates analytical category that is too broad which makes interrogation of the most critical factor influencing the implementation process very cumbersome and under what conditions and circumstances (Hill and Hupe, 2002).

Van Meter and Van Horn model (1975) identify six (6) diametrical variables that can be used to better understand the policy implementation process. The variables are: first, standard and objectives of the policy. Policy objectives outline the roles and responsibilities of frontline workers and help in eliciting support from implementing agencies. A clarity of policy objective can also influence local level perceptions about capacity and will in a number of ways such as the degree of consensus and conflicts that exist regarding the change and its quality and practicability. Second, policy resources. Adequacy and timely release of funds made available to the program is the key factor in policy implementation success. In addition, technical resources; skills, equipment and infrastructural development are also needed to make policies and program implementation effectiveness particularly at local level. Third, intergovernmental relations which argues implementation brings together multiple actors and institutions who must work in a close collaboration for policy objectives to be realized. Meter and Horn writes: 'implementation will be most successful where only marginal change is required and goal consensus is high' (1975: 461). Goal consensus help in active participation and reduce initial resistance to ensure implementation success. Fourth, the characteristics of the implementing agency. Certain traits and qualities of the agency personnel and organizational structure tend to condition implementation. Fifth, socio-political and economic aspects of the environment. Factors external to the program such as order and stability and leadership commitment, density of social network, traditional values and norms as well as

financial support. Finally, and the sixth, implementers' dispositions which looks at the attitudes, motivations, and predispositions of implementing agencies. Response of implementers according to the authors involves three elements: their understanding of the policy, direction of their response to the policy (acceptance, neutrality, rejection), and the intensity of their response.

According to Brian Hogwood and Lewis Gunn (1984), for sound implementation certain pre-conditions must be available. They outlined ten (10) overlapping variables that are critical and they include external constraints to implementing agencies; adequate time and sufficient resources; clear understanding and agreement of policy objectives; existence of communication and collaboration mechanisms; and total compliance from the perspectives of central actors. In addition are the models developed by Wildavsky and Pressman (1973) and George Edwards (1980).

The bottom-up researchers critiqued the top-down theorists for considering implementation as purely an administrative process and ignoring other actors as constituting impediments (Sabatier, 1986; Rod and Høybye, 2015). The bottom-up document endorses that policy objectives hardly remain unaffected as they make their way through the policy process. Scholars within this category challenged the ability of the centre to carry out its strategic decisions in a linear approach. Bottom-up shifted analytical attention from centralized authority and institutional goals to contextual and field variables by focusing on individual incentives, beliefs, and capacity (O'Toole, 2000). Subsequently, Lipsky (1980/2010) described bureaucrats are 'king makers' in the policy delivery as they are closer to the real problems and have an in-depth and better understanding of the issues. Frontline workers exercise discretion to accomplish complex tasks at the operational level; possession of autonomy at the local level while establishing standard operating procedures to meet central planners policy conditions.

Another feature was that bottom-up researchers were descriptive in nature as they sought to explain the implementation process as an outcome and as such emphasized the role of factors that caused difficulty in implementation (Matland, 1995). This fulfils Barret's (2004) assertion that bottom-up theorists tended to focus on understanding and explanation on the basis that it was not possible to prescribe without understanding. The weakness of the bottom-up is that the methodology used tends to overemphasize the degree of autonomy of the local-level actors (Matland, 1995).

To overcome the problem of too many variables and of the heavy reliance on few observations, a third generation of policy implementation researchers emerged in the latter half of the 1980s led by Goggin, Bowman, Lester and O'Toole (1990). This development also departed from the deterministic idea that mere provision of required resources would automatically enhance implementation success. Scholars argued for restatement of theories into more a testable hypothesis by clarifying concepts, establishing the causal relations and drawing valid conclusions [statistical techniques] (Winter, 2012). However, only a small number of studies have measured up to such requirements so far (Pülzl and Treib, 2007) presumably due to potentially intimidating costs and methodologies, rendering such research

a lifetime undertaking (O'Toole, 2000).

3. Analytical Framework and Hypotheses

Policy implementation is so complex and situation-specific, it becomes impossible to interpret success or failure based on any one model. However, the top-down studies help in conveying the data and identifying the specific conditions shaping agricultural program implementation in Ghana. Specifically, to shed light on CODAPEC program implementation and success outcome in the Bia district, the analytical framework used in the study is based on the Van Meter and Van Horn's (1975, 2002); Sabatier and Mazmanian (1980); and Hogwood and Gunn (1984) top-down views of policy implementation. Figure 1 depicts the hypothetical model.

Considerable studies indicate that policy objectives and relevance to the identified problem is precondition for analysing the degree of implementation success (Van Meter and Van Horn, 1975; Mazmanian and Sabatier, 1983; Hogwood and Gunn, 1984; Blackmore, 2001). Knowledge of national and/or policy makers intention is critical in assessing performance. It argued that if policy reform goals and the means of implementation are well-defined, highly motivated subnational government officials can find the policy tools that mirror societal needs. The stated policy goals should be relevant and meet the needs of the target population. It is hypothesized that:

H1: Clarity of the CODAPEC program objectives will be positively related to increase in cocoa output levels.

Studies indicates that reliable stream of resources enables implementers to maintain a focus on the reform as well as sent a signal to frontline workers that the program has leadership approval (Van Meter and Van Horn, 1975; Hogwood and Gunn, 1984; Winter 2012). A key characteristic of resource is the supply of material inputs. The basic observation has been borne out in the studies of the importance of the adequate supply of logistics and material resources by Sabatier and Jenkins-Smith (1993). Based on this, the study formulates:

H2: The higher quantity of material resources (agrochemicals) supplied and actually used, has positive effective on the CODAPAC program and increased cocoa output levels.

Empirical studies (Saetren, 2009) show that leadership commitment and communication affect the outcome of policy reforms. Program implementation success needs a leader particularly at the local level who guides, inspires, corrects, and strengthens subordinates in a chain of command; the existence of actors to set up the appropriate systems. Local institutional capacity and autonomy in the supervision of implementation has positive contribution in achieving policy stated objectives (Van Meter and Van Horn, 1975; Hogwood and Gunn; 1984, O'Toole Jr., 2004). Similarly, Ika et al. (2012) argue monitoring, coordination, and institutional environment are critical success factors in program supervision. Through supervision, team leaders ensure proper training is available to line personnel or program implementation staff (Kealey et al., 2005) and proper monitoring is undertaken to realize program objectives (Spilsbury, 2010). Applying insights derived from communication factors and managerial innovations, it suggests that supervision contribute to program

implementation. Hence:

H3: There is a positive and significant relationship between managerial supervision and increase in cocoa output

Implementation as a process is dependent on the availability of the required resources and the ability to control these resources to achieve the desired end, particularly if a policy requires the creation of new structures and the hiring of new personnel (Van Meter and Van Horn, 1975; Pressman and Wildavsky, 1973; Mazmanian and Sabatier, 1983; Schofield, 2001; Barrett, 2004). Human resource research shows that the relevance of human resource to policy reform implementation is not limited to only the question of number, but also in the mix of skills, competencies and characteristics of personnel and how these are distributed and targeted to the attainment of reform goals at all levels (Armstrong, 2010). Again, frontline staff know more about the challenges of delivery than the official policy-makers (Allcock, 2015). Adequate training, experience and qualifications of line personnel are critical to the attainment of policy/program goals as conceived by policy makers and top management. The study offers the hypothesis that:

H4: Knowledge and expertise of frontline workers has positive effect on the implementation of CODAPEC program and associated increase in cocoa production levels.

In addition to the provision of human resources, it expected that participation to play a role in CODAPEC success. Van Meter and Van Horn (1975) were of the view that success is achieved if participatory consensus is taken into consideration in the implementation of policies. Goal consensus among participants in the implementation process. According to the authors implementation of policies should involve creating 'fora' in which large range of stakeholders are brought together to communicate in order to enhance mutual learning. Therefore, the following hypothesis is tested in this study:

H5: Increase in cocoa production is a function of farmers consensus participation in CODAPEC's education program.
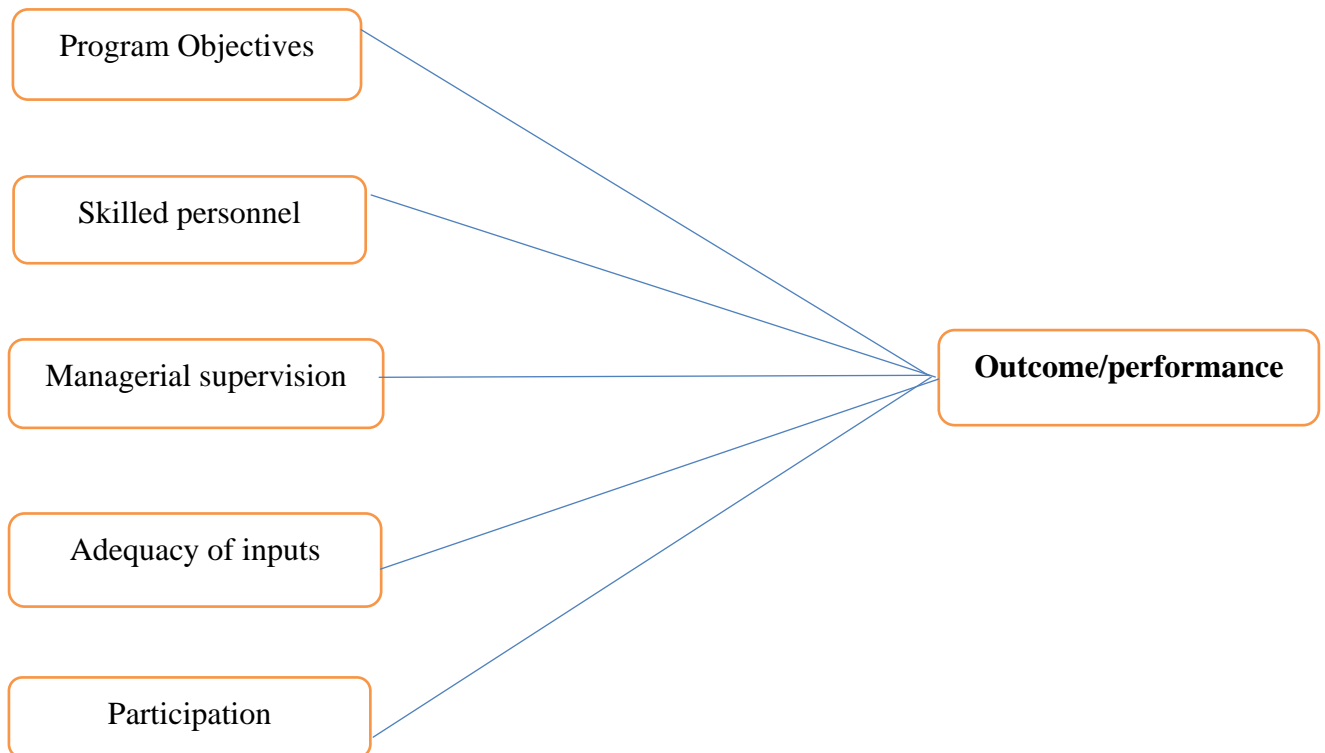
Figure 1. Analytical framework of the study

source: author construct from Van Meter & Van Horn, 1975; Mazmanian & Sabatier; 1980; Hogwood & Gunn, 1984

4. Study Area and Methods

A descriptive (longitudinal) case study design was used, combining a review of policy document and quantitative survey technique. Quantitative study dissects cases into variables for hypotheses testing and the results of the study can be generalized or quantified. The study was conducted in the Bia District in the Western North Region of Ghana. It is one of the largest districts in the Western part of the country. It has a surface area of 2,185.3 sq. km2. The District economy is basically agrarian skewed towards cocoa production, with few trading and tertiary activities. The Bia was chosen for this study because it is the largest cocoa producing district in the region. The sustainability of the program has therefore been more prominent and pertinent.

4.1 Participants and Data Collection

The sample group in this study was selected from beneficiary farmers of the program. The District (Bia) has at least 359 communities with a population of about 217,126 (Population and Housing Census, 2010). A two-stage sampling procedure was adopted. The first stage involved a purposive selection of ten units (communities) known to be the largest cocoa producing areas in the District where the program has been more prominent and pertinent. The second stage involved the random selection of 100 households (farmers) from the ten (10) cocoa producing communities in proportion to the size of the village. These were done using

the updated list of beneficiary farmers' register kept by local Supervisors in charge of the communities.

Data collection was made by means of hand-delivered questionnaire supplemented, as required and feasible by field notes. Data were collected during the regular crop season (October-December). The researcher explained to participants that the purpose of the research was to determine how the CODAPEC program has increase the production level of cocoa. Respondents consented, and the procedure and items were elaborately explained before the questionnaire was administered. Since the researcher self-administered the questionnaire, all questionnaires were completely answered and used for the final analysis. The data was carried out in accordance with ethical considerations, and participation was voluntary and confidential.

4.2 Instrument

This study adopted questionnaire to obtain the views of farmers on the factors responsible for the sound implementation of the CODAPEC program. The survey asked participants a range of questions including implementing officials' responsibilities, the program implementation process and success factors and challenges experienced. Also included in the survey were a number of demographic items and questions about farmers' life histories. Demographic items included in the analysis were gender, farming experience, age, and highest level of education. The personal life component included 7 survey items, whereas the implementation process and the factors for successful implementation section included 20 items. The success/critical factors were presented in randomly ordered style and farmers responded to each item on 5-point Likert type scale (1= strongly disagree, 5= strongly agree). Sample statements includes "were the objectives of CODAPEC program clearly explained to you; gang sprayers were skilled and well trained to ensure effective implementation of CODAPEC." The questionnaire for the study was tested before administration to ensure reliability and effectiveness. Cronbach's alpha, a measure of internal consistency, was .653.

4.3 Dependent Variable

In empirical measures, numerous indicators illustrate the success of policy implementation. In this study, the dependent variable was increase in cocoa output levels; which denotes the extent beneficiary farmers are satisfied with increase in the export commodity (cocoa) arising from the government intervention program on a 5-point frequency scale: "are you satisfied with increased cocoa production levels as a result of the CODAPEC program?" (1=much less satisfied, 5=much more satisfied). Results demonstrate that 50% of the survey respondents were of the view that the government's productive program had improved farm practices and subsequent increase in yield whereas 38% were slightly more satisfied with output levels and the effort to resuscitate the dwindling cocoa industry (see Table 1). Further, to supplement the information from the survey, data were obtained from COCOBOD on cocoa production level for Bia district: before (1990/91-1999/2000) and after (2000/2001-2010/2011) (figure 2). A period of ten years used support the position of Sabatier and Mazmanian (1980); Sabatier (1986) that one must examine a policy over a decade in order to fully appreciate the evolution of the policy overtime.

Table 1. Farmers satisfaction With Increased Cocoa Production

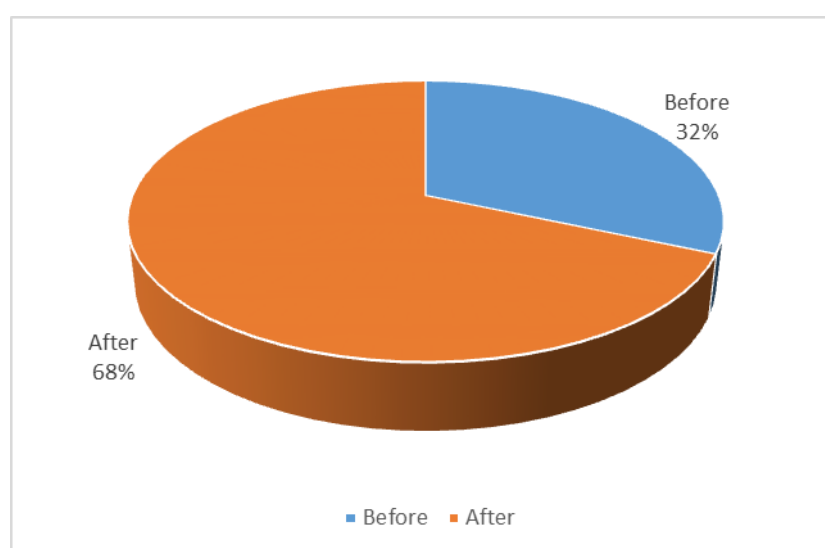| Response	Number (%)
Much Less Satisfied	2
Lightly Satisfied	5
About the same	7
Slightly More Satisfied	38
Much More Satisfied	50
Total	**100.0**

Figure 2. Bia district cocoa production levels: before and after CODAPEC program

4.4 Analysis Plan

Statistical analyses were performed using SPSS 20.0 (Statistical Package for the Social Sciences). Simple descriptive statistics were generated using frequencies for each item of the questionnaire in order to determine the most common responses and the general trend. Analysis of Variance (ANOVA) was used to explore significance differences between increased in cocoa output in terms of the program objective; skilled personnel; managerial supervision; adequacy of agrochemical used; and farmers participation educational program (independent variables). All tests were considered at alpha statistically significant <0.05. Pearson's correlation analysis and Multiple regression analysis were applied in the verification of the relative importance of the factors responsible for the success of the CODAPEC program.

5. Results

5.1 Profile of Respondents

Gender distribution is similar to those of the overall socio-economic activities in Ghana, 77 participants were male and 23 were female. Participants' age ranged from 21 to 82. The average educational breakdown of participant farmers population in the district included 14% no formal education, 19% basic/primary; 63% junior and secondary education and tertiary 4%. In terms of marital status, 86% were married or living with a partner, and 3% were separated or divorced and 5 and 3 were window and single respectively. Finally, the study found that the experience was very high. The majority of participants (74%) reported they have been in the cocoa sector for more than 10years.

Table 2. Sample Characteristics

Description		Number (%)
Gender	male	**77**
	female	**23**
Age	21-30	8
	31-40	12
	41-50	24
	51-60	30
	60+	25
Marital status	married	**86**
	Single	6
	Widow	5
	Divorced	3
Education	No formal edu.	**14**
	Primary	19
	Junior Sec.	51
	Senior Sec.	12
	Tertiary	4
Years of experience	1-10	16
	11-20	22
	21-30	31
	31-40	19
	>41	12

Source: survey data

5.2 Factors Explaining CODAPEC Implementation Success

Studies (Leite, 2016; Trappel, 2016; Balié and Narayanan, 2019) indicates many factors affect the implementation of agricultural programs and thereby affect the outcome variables. These factors include supportive policy environment, availability of resources, commitment of and skilfulness of implementing officials, clarity and consistent policy objectives, coordination of stakeholders among others. The study expect increase in cocoa output levels to be influenced by the CODAPEC program objectives, managerial supervision, adequacy of agrochemicals supplied and used, farmers participation in education program and skilled personnel. Two sets of analysis are presented and discussed in the following sections. The first section explores the relation between the explanatory variables and increased cocoa output levels. The second set of analyses involves a discussion of the relative importance of the success factors.

Program Objective

Consideration of policy objectives clarity and relevance to the problem is critical to the analysis of the degree of implementation success. Participants expressed the view that the objectives of the program were well articulated. A larger majority of participating farmers (82%) indicated that the main aim of the program was to reduce the incidence of diseases and pests of cocoa and increase production levels. Another 18% agreed that the farm practices they adopted were in line with the program meaningful objectives (Table 3).

Table 3. Clarity of Program Objectives

Response	Number (%)
Strong Agree	82
Agree	18
I don't know	0
Disagree	0
Strongly Disagree	0
Total	**100.0**

Source: survey data

Hypothesis 1 predicts that clear and consistent objective will be positively related with increase cocoa output levels. Table 4 presents the results of the ANOVA analyses. CODAPEC program objective (PO) is significantly related to increased cocoa production. Evidently, this can be inferred from the resultant P-value and F-statistics of the distribution, $F_{(4, 95)} = 2.466$, $p < .005$). This hypothesis is supported; CODAPEC program was bolstered with meaningful and high-level stated objectives from central policy planners.

Table 4. Summary of ANOVA Scores for the Study Independent Variables

Variable Name	SS	MS	F	P
Prog. Objective.	1.389	.347	2.466	.050
	13.371	.141		
	14.760			
Supply of agrochemicals	3.114	.779	2.797	030
	.278	.278		
	29.560			
Supervision	10.364	2.592	3.952	.005
	62.276	.656		
	72.640			
Skilled Personnel	35.035	8.759	22.204	.000
	37.475	.394		
	72.510			
Farmers participation	1.410	.353	.3.996	.005
	8.380	.88		
	9.790			

*SS= Sum of Square; MS=Mean Square; F=Degree of Freedom; P= Probability value

Supply of agrochemicals

An important characteristic of the success of programs and policies is the availability of material resources. Participants were asked whether or not they agree with the number of agrochemicals supplied with the statement: "are you satisfied with the quantity of chemical supplied?" 65% of participants expressed the view fungicides and insecticides made available to and actually applied to their farm lands were adequate (Table 5). However, a large minority (32%) expressed the view that agricultural inputs of agrochemicals supplied were not enough and 3% saying they did not know.

Table 5. Quantity of Agrochemical Supplied

Response	Number (%)
Adequate	65
Inadequate	32
I don't know	3
Total	**100.0**

Source: survey data

The second hypothesis address efficient use of material inputs of agrochemicals and increased cocoa output levels and subsequently farmers satisfaction. The finding revealed a positive predictive relationship as the test statistics (F) is significant of 5% (.030, < .05). The analysis of variance shows (Table 4) a probability value (P-value) of 0.030 at the significance level of 0.05.

Managerial Supervision

Meter and Horn (1975) noted that there should be effective communication within and among inter-agencies. Policy ambiguity develops when the flow of information is not well managed especially when those involved in operationalizing it do not have sufficient information. A key part of communication is managerial supervision. The Bia District used in the study, the role of overseeing implementers and the program at the communities was assigned to a Supervisors. If farmers view this role to be too rigid, it could cause resentment on the part of frontline staff (e.g. mechanical sprayers). If supervision is weak, implementers could take this as a sign that they may use their discretion in carrying out CODAPEC objectives contrary to the intention of policy makers. This type of role was measured by asking participants whether they agree or disagree with the statements; "gang supervisors were effective in the discharge of their duties." Over half of participants (57%) strongly agreed that supervisors discharged their duties and related well with their staff, 27% of respondents agreed that supervisors were important, while those who unsure and disagreed was 5% and 7% respectively.

Table 6. Supervisors' Performance

Response	Number (%)
Strongly Agree	64
Agree	33
I don't know	7
Disagree	10
Strongly Disagree	6
Total	**100.0**

Source: survey data

The analysis of variance also indicate that managerial supervision emerged as critical factor in the implementation of the CODAPEC program. The resultant P-value of 0.005 is less than alpha 0.05 [P (0.005) < α (0.05) which indicate a significant positive value. This shows that overall, local authorities are important in the implementation of public policies and programs.

Skilled Personnel

A key feature of implementing any reform is appropriate training for those delivering the initiative and is usually essential to it achieving the effects that the evidence predicts.

Implementing staff must be well prepared. In the agriculture sector, preparation should be enhanced by specific training in the techniques and systems being outlined. If farmers do not perceive the personnel (mechanical sprayers) of their communities to have adequate technical know-how and expertise, they may be less likely to work with them or allow their farms to be handled by these implementers. From the study, more than 60% of participants strongly agreed that the frontline personnel (mechanical sprayers) were skilled which ensured efficient and effective use of agrochemicals supplied. Another 30% agreed that the training was effective. 6% of farmers were uncertain or unsure with the capacity of sprayers and a marginal of 3% disagreed (Table 7).

Table 7. Skilled and Trained Personnel

Response	Number (%)
Strongly Agree	74
Agree	37
I don't know	6
Disagree	3
Strongly Disagree	0
Total	**100.0**

Source: survey data

Additionally, hypothesis 4 looks at the relationship between the availability of skilled personnel, CODAPEC implementation and farmers satisfaction resulting from increase cocoa output levels. The results summarized in Table 4 support the hypothesized relationship: if line personnel are well trained, they are likely to exhibit superior skills in the discharge of the assigned duties. (P, 0.000; $< \alpha$ (0.05). Both field notes and survey responses illustrate that most mechanical sprayers have interest and motivation in staying in their profession with social support or capital from the target farmers.

Education program

Community participation is perceived as one of the factors that influence the level of policy implementation. Implementation cannot be devoid of the beneficiary group. In response to a question asking whether they were engaged in the nature and scope of the CODAPEC program implementation particularly through training and education programs, participants more likely agree or strongly agree (Table 8). Issues that commonly triggered participation in these rural communities are related to everyday life. With open communication system in smaller and rural communities where people generally are aware of each other 's coming and going, beneficiary farmers interacted with colleagues, shared their experiences and the positive impact of the program.

There were announcements when resource personnel will meet and discuss sustained cocoa farm practices with farmers with minimum elements such as date, venue and brief description

of the main topics. Farmers were asked to indicate some of the farm issues discussed at such meetings. Those who regularly participate in education program cited regular weeding to prevent diseases and pests, diagnosis of diseases, processing of agrochemicals, and pruning and shade management to reduce humidity and allow the penetration of sunlight among others as the recommended practices. Respondents were also asked if they understood the issues discussed and the scope of the program. Farmers were able to participate and benefit immensely from the education program due to the mode of communication.

Table 8. Farmers Participation in Education Program

Response	Number (%)
Strongly Agree	89
Agree	11
I don't know	0
Disagree	0
Disagree	0
Total	**100.0**

Source: survey data

Finally, the results showed participation of farmers in the education program (PEP) .3.996 (p <.005) have significant weight on improved productivity arising from the government program in the cocoa subsector. As shown in table 4, the ANOVA scores provide strong evidence that beneficiary farmers participation in the education program played an important role in the implementation of the CODAPEC. Evidently, this can be inferred from the resultant P-value and F-statistics of the distribution. Using a significance level of 0.05, $F_{(4, 95)} = 3.996$, $P < .005$. The hypothesis that increases in cocoa output was a function of farmers participation in the educational program of CODAPEC was confirmed.

6. Discussion

The purpose of this study is to investigate the implementation of the CODAPEC program. To identify the criteria that explain the sound implementation of the program in the Bia district of Ghana. Analysis of the data shows that the independent variable 'satisfaction with increase in cocoa output' is positively and significantly correlated with the dependent variable (0.05). The results of the study are summarized, and highlighting some of the lessons learnt.

One possible explanation for the success of the program stems from clear and consistent objective. The CODAPEC program was launched in 2001 and the government successfully communicated the purpose and process of diversifying incomes in the cocoa subsector. The stagnation of the Ghanaian cocoa industry presents a challenge to the livelihood of over 1,000,000 of the population directly and associated industries as well as national income. Although, the farmer 's voice may not have been heard at the agenda setting stage of the initiative, the clarity and specificity of the program goals of increasing output and in the

process improve the material well-being of farmers directly affects the adoption of practices such as buying of agriculture products and inputs. The program meaningful objectives were well market and promoted leading to the building of adequate constituency (Brinkerhoff and Crosby, 2002). John Kufuor, President of Ghana (2001-2009) in acknowledgement as a recipient of the World Food Price Award attributed his efforts to the adoption of new technologies. He emphasized particularly on the adoption of variable inputs and mechanization policies in the cocoa subsector of which CODAPEC program was an integral component ― "*We knew that if we improved agriculture, we'll be fighting unemployment and poverty*" (BBC, 2011). In addition, the clarity of program objectives provided field officials, that is the team of mechanical sprayers and managerial supervisors a clear picture of what is expected of them. Local officials well understand what their responsibilities and obligations are and government assessed program implementation based on defined performance standards. Thus, **t**he presence of a shared vision, understanding, unrelenting support contributes to sufficient knowledge of CODAPEC implementation context. This finding supports Hill (2005) position that measurable goals keep implementation on track and set the stage for adaptive management. CODAPEC program objectives reinforce the fact that successful implementation process depends on communication. Communication must consistently repeat the goal and strategy over time so that everyone hears the same message.

The results also indicate that implementation of a policy is influenced by the resources of actors (Van Horn and Van Meter, 1977). A gap exists in policy objective and implementation success if the needed and necessary material resources are not provided. With regard to CODAPEC program, provision of insecticides and fungicides were the key resource. Farmers expressed satisfaction with the right type and quantity of agrochemicals made available to them and at the right time of the year. The chemicals supplied included kocide 2000, ridomil gold 66 (fungicides), confidor and actara (insecticides). The findings illustrate the fact that improved farm inputs available to farmers raise agricultural productivity. The basic observation has been borne out in the studies of the importance of the adequate supply of logistics by Mengistie et al. (2015).

This study shows that availability of the requisite human resources continues to be a significant predictor of implementation success (Armstrong, 2010). A reason for this positive and significant relation is the extensive experience, adequate training and qualification of mechanical sprayers to deal with the process and the practical approach to the program implementation. Each field personnel (mechanical sprayer) employed had formal classroom education and adequate time was allocated for training at the community level on issues such as the use of protective clothing, safe handling of inputs and efficient use of agrochemicals. The implementation of CODAPEC program was decentralized, (within central control) meaning that the responsibility for distribution of inputs and evaluation delegated from the national to districts and the local committees and supervisors selected the right project teams based on performance of professional duties and created a sense of urgency for change. This includes project planning, publicizing the success stories and selecting the right project team. The spraying teams visited the farms of the beneficiaries and undertook spraying exercise without charging a fee. Again, mechanical sprayers exhibited commitment in the program

execution or showed interest in the work because they earned monthly stipends as well as high social appreciations, particularly from the beneficiary farmers. The role of technical knowledge in CODAPEC is essential because where the question of capacity has been raised, research on implementation tended to focus upon fiscal resource and rarely upon intellectual capacity and skill. The skills and qualities of the frontline personnel was crucial in determining acceptance and receptive of the program. The study advocates that in addressing the skill needs of implementers, emphasis should be on the capacity building of government and non-governmental bodies at the local levels to fulfil the roles and responsibilities expected of them. Hill (2005) emphasizes that synchronization of the policy objective with capacity building and organizational processes as a determinant of programs success.

Furthermore, empirical findings showed that micro-level variables (administrative capacity at the local level) is critical in ensuring implementation success. Ansell et al. (2017:) position that the need for policies to be designed in a way that "connects actors vertically and horizontally in a process of collaboration and joint deliberation." Under decentralized system, decision-making is shifted to the subunits with effective communication at the community level. Supervisors collaborated to search for sufficient common ground to proceed with the program implementation. They set up objectives such as the upgrading and capacity of technical services and clear direction on the team members' roles and responsibilities. Supervisors had clear understanding of the program process and translated that process into simple design that was compatible with the end users (beneficiary farmers). Supervisors had expertise in management skills and experienced. Most of program supervisors are 'big time' cocoa farmers and help to integrate the skill set into the implementation process. The experiences were used to build conceptual alliance with the target farmers. They know what can and cannot be compromise in terms of the planning, acquisition, allocation and controlling the use and maintenance of materials. Farmers had constant face-to-face or personal contact with supervisors for the spreading of information and assistance on CODAPEC measures such as weeding of farms and the scheduled date to carry out the spraying exercise on their farms.

The finding resonates with Allcock et al. (2015) that managerial frontline staff know more about the challenges of delivery than official policy-makers and imperative to tap into their perceptions and experiences of those who drive the implementation process. Additionally, the results extend previous studies that strong leadership at the local level can influence and dictate the relationships, motivations, and perceptions of implementing actors and organizations thereby directing the process (Einstein and Kogan, 2016). CODAPEC offer the lesson that, leaders in organizations should not be restrained by severe lack of autonomy as the usual bureaucratic structure subscribes. Local officials are committed in actualizing policy intentions when given discretion to do so. Lack of autonomy over their roles could lead to fatalism and failure of policies. Again, leaders can play this role more effectively if they possess the requisite knowledge and skills acquired formally or through experience that will enable them to strategize and provide the technical requirements.

Finally, the educational program helped to overcome the conflicts that emerge when common pool of resources is shared. It argued that when empowered, farmers are able to set their goals

and monitor their own performance as well as identify and solve problems that affect their farm work, and thus they are supporting the government efforts to increase productivity. CODAPEC program created forum in which large range of stakeholders were brought together to discuss farm issues and enhance mutual learning. Most farmers responded that they did receive adequate technical assistance and information from the official extension services on measures that would be required to put in place to ensure high yields. The education program focused on proper farm maintenance through weeding, increased use of material inputs such as pesticides, and pruning and shade management to reduce humidity and allow the penetration of sunlight among others. Such knowledge has to a more extent controlled the prevalent of diseases and pests as it was grounded in the preference of the farmers or conducted in the local dialects (Twi and Sefwi) and therefore generated their cooperation.

The importance of this factor is expressed in the implementation models of (Grindle and Thomas, 1990) that people participate and support reform implementation if the change expected would ensue to their benefits. Farmers participation in non-formal education gives legitimacy to the CODAPEC program design and its outcome and reinforces the argument that community participation has the advantage of addressing local socio-economic concerns. The result also confirms Van Meter and Van Horn (1975) studies that success is achieved if participatory consensus is taken into consideration during the implementation process. The finding implies that there should be inclusive and meaningful participation and shared decision making at multiple levels of the policy process. Furthermore, the participatory approach, allow policy formulators to explain their reasons for pursuing specific policies and also offer management the opportunity to observe the position or reaction of societal groups.

6.1 Relative Importance of the Influencing Factors

In order to determine the factors that had an overbearing effect on the program success, the study conducted further analysis to account for potential variations in the data. The program objective for instance may have different effect depending on the strength of the variable. To test this possibility, the study employed a one-tailed Pearson correlation coefficient between the five independent variables, and the dependent variable; satisfaction with increased production levels (SPL). Table 9 summarizes the relative importance of the variables. As shown by the data, there is variation between the variable with the highest value (0.623) and the smallest value (0.165). Two of the factors that had strong correlation values were supply of Skilled Personnel (SP) and Farmers Participation in Education Program (PEP) with r – values of 0.623 and 0.342 respectively. The empirical positive and significant coefficient magnitudes imply that while participation in educational program (0.342) played a large role in determining the success of CODAPEC, the availability and supply of skilled personnel is the most important variable in the model (0.623). The largest single value comes from the coefficient associated with the supply of skilled personnel. Objective of CODAPEC program (PO) had marginal indicator (0.165). From the statistical analysis and the magnitude of the correlation coefficients, the independent variables that influenced the implementation of the program are listed in order of importance as: the supply of skilled personnel (SP); participation in CODAPEC education program by farmers (PEP); adequacy of agrochemicals

supplied and used (AGS); effectiveness of managerial supervisors (S); and the objective of the program (PO).

Table 9. Correlation Coefficients

	PEP	AGS	PO	S	SP
SPL					
PEP					
Correlation	1.000				
Sig. (1-tailed)					
AGS					
Correlation	.011	1.000			
Sig. (1-tailed)	.458				
PO					
Correlation	.251	.151	1.000		
Sig. (1-tailed)	.006	.066			
S					
Correlation	.181	.167	.425	1.000	
Sig. (1-tailed)	0.35	.049	.000		
SP					
Correlation	.102	.353	.237	.470	1.000
Sig. (1-tailed)	.155	.000	.009	.000	
SPL					
Correlation	.342	.288	.165	.272	.623
Sig. (1-tailed)	.000	.002	.050	.003	.000
1.000					

**Correlation is significant at the 0.01 level (1-tailed)

* Correlation is significant at the 0.05 level (1-tailed)

Given that the five variables were able to contribute to the success of CODAPEC individual and statistically significant, the decision was made to examine the overall contribution of these factors. In order to determine the combined effect of the independent variables, a regression analysis was performed utilizing the five factors. The results of the regression analysis presented in table 10 shows that fit of the model can be considered as sufficient with the coefficient of determination (R^2) of 0.480. In combination, a variation in the five independent variables in terms of CODAPEC implementation success was 48%.

Table 10. Results of Regression Analysis from the five Independent Variables

Independent Variables	Beta
Participation in educational program	.303
Objective of the program	.097
Supply of skilled personnel	.040
Supply of agrochemicals	.063
Role of supervisors	.597
$R^2 = 0.480$	

*Significant at 0.05 level

7. Conclusions

The main goal of the study has been to quantitatively examine factors that influenced agricultural program implementation from the perspective of beneficial farmers, as well as the relative importance of these factors. Based on literature from the policy implementation research, a theoretical model was constructed linking five dynamic variables to the program implementation. All the variables showed a reasonable fit to the data and p-value for all the five factors was significant at 0.05. The CODAPEC program attempts to reduce incidence of cocoa diseases and pests and to increase yields by reining in more income for farmers. The results suggest that non-price market interactions such as production policies and public investments are important in explaining increase in cocoa production. Additionally, the results indicate that the implementation of the CODAPEC program has been effective in streamlining the cocoa industry from its initial "capitalist" orientation as suggested by Hill (1970) where the sustainability of cocoa growth in Ghana was driven mainly by land expansion. Cocoa production under the CODAPEC no longer experienced area expansion which resulted in clearing of bushes and trees leading to deforestation or disappearance of forest reserves.

The overall conclusion from the study is that there are criteria that influence and shapes agricultural policy implementation in developing countries. Primarily, the study show that the program contents were clear resulting in real outcomes. The goals were detailed with transparency and accountability systems established both at the national and local levels. The meaningful objectives of the program promoted constituency building leading to change in farm practices. Again, it evident that linking goals to resources ensure implementation success. Results of this study also show that efficient utilization of agricultural inputs of agrochemicals including pesticides and insecticides ensure sound implementation of CODAPEC.

More importantly, from the study, it emerged that grassroot innovative best management practices support sound implementation. In the case of CODAPEC program, supervisors served as "fixers". They invested their time, energy, skills, and reputation to promote the

objectives of the program. This implies that appropriate teaching guidelines have given to the local authorities to effectively work and communicate with the local farmers. Not to consult with local officials about managerial arrangement is to fail to take advantage of their experience and particular perspectives. Finally, education of end users increased cocoa productivity under the CODAPEC program. Sufficient information and advice are shown to promote proper usage and handling of agrochemicals at the farm level. Beneficiary farmers were provided with technical knowledge to identify symptoms of disease and pest attacks. This indicates that participation of local people is important in designing and implementing programs particularly with respect to policy measures.

The study argues that there is the need to create what has been characterized as the enabling environment for the buying and use of inputs and products. Governments must maintain the prices of inputs low in the context of liberalization and market rates. It does suggest provision of incentive system such as cash transfer to small-holder farmers endowed with limited capital to control diseases and pests. Along the same line, the producer price of cocoa should be reviewed periodically to increase the purchasing power of farmers as compensation for higher domestic prices of agriculture products. Equally important, is the development and integration of the private sector to complement public institutions to transform research, extension services and other segment of the cocoa value chain.

The conclusions are limited by the detailed qualitative analysis of often short written responses to survey question. While this paper covers the success factors, it recommended that further research includes interview to gain a more detailed insight into CODAPEC implementation process and the success factors as well as the challenges. The conclusion is also limited by the potential biases in the sampling frame. The study is constrained by the unavailability of data on the other key stakeholders such as the team of mechanical sprayers which would yield more inclusive results.

References

Allcock, C., Dorman, F., Taunt, R., & Dixon, J. (2015). *Constructive Comfort: Accelerating Change in the NHS.* London: Health Foundation.

Ansell, C., Sørensen, E., & Torfing, J. (2017). Improving Policy Implementation through Collaborative Policymaking. *Policy & Politics, 45*(3), 467-486. https://doi.org/10.1332/030557317X14972799760260

Armstrong, M. (2010). *A Handbook of Human Resource Management Practice (10ʰ edn.).* London: Kogan Page.

Balié, J., & Narayanan, B. (2019). "What Should be the Focus of Agricultural Policy Reforms in Sub-Saharan Africa?" A CGE Analysis. *Margin: The Journal of Applied Economic Research*, *13*(4), 401-435. https://doi.org/10.1177/0973801019868392

Bardach, E. (1977). The Implementation Game: What Happens After a Bill Becomes a Law. *Cambridge, Massachusetts: The MIT Press.*

Barrett, S. (2004). Implementation Studies: Time for a Revival? Personal Reflections on 20 Years of Implementation Studies. *Public Administration, 82*(2), 249-262. https://doi.org/10.1111/j.0033-3298.2004.00393.x

BBC. (2011). *Ghana's Kufour: Cocoa was key to World Food Price.* Retrieved from www.bbc.com/news/world-africa-13877077

Birkland, T. A. (2015). *An Introduction to the Policy Process: Theories, Concepts, and Models of Public Policy Making* (4ʰ edn.*).* London: Routledge. https://doi.org/10.4324/9781315717371

Blackmore, M. (2001). Mind the Gap: Exploring the Implementation Deficit in the Administration of the Stricter Benefits Regime. *Social Policy and Administration, 35*(2), 145-162. https://doi.org/10.1111/1467-9515.00224

Bollens, S. A. (2018). National Policy Agendas Encounter the City: Complexities of Political-Spatial Implementation. *Urban Affairs Review*, 1-31. https://doi.org/10.1177/1078087418811676

Breisinger, C., Diao, X., Kolavalli, S., Al-Hassan, R., & Thurlow, J. (2011). *A New Era of Transformation in Ghana: Lessons from the Past and Scenarios for the Future*. Research Monograph. Washington DC: IFPRI.

Brinkerhoff, D. W., & Crosby, B. L. (2002). *Managing Policy Reform: Concepts and Tools for Decision Makers in Developing and Transition Countries*. Bloomfield, CT: Kumarian Press.

De Spiegeleire, S., Jans, K., Sibbel, M., Holynska, K., & Lassche, D. (2019). "Implementing Defence Policy: A Benchmark-"lite". *Defense & Security Analysis*, *35*(1), 59-81. https://doi.org/10.1080/14751798.2019.1565365

Edwards, III. G. (1980). Implementing Public Policy. Washington D.C.: *Congressional Quarterly Press*.

Einstein, K. L., & Kogan, V. (2016). Pushing the city limits: Policy responsiveness in municipal government. *Urban Affairs Review*, *52*(1), 3-32. https://doi.org/10.1177/1078087414568027

Ghana Cocoa Board. (2011). *Overview of Cocoa Diseases and Pests Control Project*. Accra: Ghana Cocoa Board.

Goggin, M. L. (1986). The Too Few Cases/Too Many Variables Problem in Implementation Research. *Western Political Quarterly, 39*(2), 328-347. https://doi.org/10.2307/448302

Goggin, M. L., Bowman, A. O. M., Lester, J. P., & O'Toole, L .J. Jr. (1990). *Implementation Theory and Practice: Toward a Third Generation.* New York: Harper Collins.

Grindle, M. S., & Thomas, J. W. (1990). After the Decision: Implementing Policy Reforms in Developing Countries. *World Development, 18*(8), 1163-1181. https://doi.org/10.1016/0305-750X(90)90096-G

Harald, S. (2005). Facts and Myths about Research on Public Policy Implementation: Out-of-Fashion, Allegedly Dead, But Still Very Much Alive and Relevant. *The Policy Studies Journal, 33*(4), 559-582. https://doi.org/10.1111/j.1541-0072.2005.00133.x

Hill, M. (2005). *The Policy Process* (5th edn.). Harlow: Pearson Limited.

Hill, M., & Hupe, P. (2002). *Implementing Public Policy: Governance in Theory and in Practice*. London: Sage Publications.

Hill, P. (1970). *Studies in Rural Capitalism in West Africa*. Cambridge: Cambridge University press.

Hogwood, B. W., & Gunn, L. A. (1984). *Policy Analysis for the Real World*. Oxford University Press.

Hupe P, L., & Hill, M. J. (2016). And the Rest is Implementation. Comparing Approaches to What Happens in Policy Processes beyond Great Expectations. *Public Policy and Administration, 31*(2), 103-121. https://doi.org/10.1177/0952076715598828

Ika, L., Diallo, A., Thuillier, D., (2012). Critical Success Factors for World Bank Projects: An Empirical Investigation. *International Journal of Project Management, 30*(1), 105-116. https://doi.org/10.1016/j.ijproman.2011.03.005

ISSER. (2013). *The State of the Ghanaian Economy in 2010 Institute of Statistical Social and Economic Research,* University of Ghana, Legon.

Kealey, D. J., Protheroe, D. R., MacDonald, D., & Vulpe, T. (2005). Re-examining the role of training in Contributing to International Project Success: A Literature Review and an Outline of a New Model Training Program. *International Journal of Intercultural Relations, 29*(3), 289-316. https://doi.org/10.1016/j.ijintrel.2005.05.011

Kingfisher, C. (2013). *A Policy Travelogue: Tracing Welfare Reform in Aotearoa/New Zealand and Canada*. New York: Berghahn Books.

Laurence, J. O. Jr. (2004). The Theory-Practice Issues in Policy Implementation Research. *Public Administration, 82*(2), 309-329. https://doi.org/10.1111/j.0033-3298.2004.00396.x

Leite, S. P. (2016). The Role of Policy Makers in the Formulation and Implementation of Public Policy for Brazilian Agriculture. *Latin American Perspectives, 207, 43*(2), 60-76. https://doi.org/10.1177/0094582X16632027

Lester, J., & Goggin, M. (1998). Back to the Future: The Rediscovery of Implementation Studies. *Policy Currents, 8*(3), 1-9.

Lipsky, M. (1980). *Street-Level Bureaucracy: The Dilemmas of Individuals in the Public Service*. New York: Russell Sage Foundation.

Lipsky, M. (2010). *Street-level Bureaucracy: Dilemmas of the Individual in Public Services* (30th anniversary expanded ed.). New York, NY: Russell Sage.

Matland, R. (1995). Synthesizing the Implementation Literature. The Ambiguity-Conflict Model of Policy Implementation. *Journal of Public Administration Research and Theory*, *5*(2), 145-174.

Mazmanian, D., & Sabatier, P. (1983). I*mplementation and Public Policy*. Glenville, IL: Scott, Foreman.

Mazmanian, D., & Sabatier, P. (1989). *Implementation and Public Policy*. Maryland: University Press of America.

McLaughlin, M. W. (1987). Learning from Experience: Lessons from Policy Implementation. *America Educational Research Association*; *Education and Policy Analysis, 9*(2), 171-178. https://doi.org/10.3102/01623737009002171

Mengistie, B. T., Mol, A. P., Oosterveer, P., & Simane, B. (2015). Information, Motivation and Resources: The Missing Elements in Agricultural Pesticide Policy Implementation in Ethiopia. *International Journal of Agricultural Sustainability*, *13*(3), 240-256. https://doi.org/10.1080/14735903.2014.959330

Mensah, F. (2011). Ghana Looks Ahead-After Hitting One Million Metric Tonne Cocoa Target. *Ghanaian Times,* p.9. Sept. 13.

O'Toole, Jr. L. J. (2000). Research on Policy Implementation: Assessment and Prospects. *Journal of Public Administration Research and Theory, 10,* 263-288. https://doi.org/10.1093/oxfordjournals.jpart.a024270

Pressman, J., & Wildavsky, A. (1973). *Implementation*. Berkley: University of California Press.

Pulzl, H., & Treib, O. (2007). "Implementing Public Policy." In Fischer, F & Miller, G & Sidney, M. (eds.) *Handbook of Public Policy Analysi*s. New York: CRC Press, 89-107. https://doi.org/10.1201/9781420017007.ch7

Rod, M. H., & Høybye, M. T. (2015). A Case of Standardization? Implementing Health Promotion Guidelines in Denmark. *Health Promotion International*, *31*(3), 692-703. https://doi.org/10.1093/heapro/dav026

Rodriguez, D. A., Lounsbery, M. A., & Sallis, J. F. (2016). The Active Living Research 2015 Conference: The Science of Policy Implementation. *Environment and Behavior, 48*(1), 4-12. https://doi.org/10.1177/0013916515615174

Rondinelli, D. A. (1983). Projects as Instruments of Development Administration: A Qualified Defence and Suggestions for Improvement. *Public Administration and Development, 3*(4), 307-327. https://doi.org/10.1002/pad.4230030404

Sabatier, P. (1986). Top-down and Bottom-Up Approaches to Implementation Research: A Critical Analysis and Suggested Synthesis. *Journal of Public Policy, 6*(1), 21-48. https://doi.org/10.1017/S0143814X00003846

Sabatier, P., & Jenkins-Smith, H. (1993). *Policy Change and Learning: An Advocacy Coalition Approach*. Boulder, CO. Westview Press.

Saetren, H. (2009). Explaining Radical Policy Change against all Odds: The Role of Leadership, Institutions, Program Design and Policy Windows. In Raffel, J.A., Leisink, P. & Middlebrooks, A.E. (eds.). *Public Sector Leadership: International Challenges and Perspectives.* Cheltenham: Edward Elgar, 53-72. https://doi.org/10.4337/9781848449343.00011

Schofield. J. (2001). Time for a Revival? Public Policy Implementation: A Review of the Literature and an Agenda for Future Research. *International Journal of Management Reviews, 3*(3), 245-263. https://doi.org/10.1111/1468-2370.00066

Spilsbury, M. J., Brann, J., & Norgbey, S. (2010). *Quality of Project Supervision Review 2009.* Summary Report. Evaluation Office, Quality Assurance Section, UNEP.

Thomas, J., & Grindle, M. (1990). After the Decision: Implementing Policy Reforms in Developing Countries. *World Development, 18*(8), 1163-1181. https://doi.org/10.1016/0305-750X(90)90096-G

Van Horn, E., & Van Meter, D. (1977). The Implementation of Intergovernmental Policy. *Policy Studies Review Annual, 1,* 97-120.

Van Meter, D., & Van Horn. C. (1975). The Implementation Process: A Conceptual Framework. *Administration and Society, 6*(4), 445-488. https://doi.org/10.1177/009539977500600404

Winter, S. (2012). *Implementation.* In Peter, B. & Pierre, J. (eds.). *Handbook of Public Administration* (2nd edn.). London: Sage Publication, 225-264

Winter, S. C. (2012). *Implementation Perspectives: Status and Reconsideration.* In B. G. Peters & J. Pierre (eds.), *The Sage Handbook of Public Administration.* Los Angeles: Sage, 212-222. https://doi.org/10.4135/9781446200506.n17

Yin, R. (2014). *Case Study Research Designs and Methods (5th edn.).* London: Sage Publications.

Appendix A:

Estimated Bia District Cocoa Purchases from 1990/91 to 2010/11 crop seasons

Year	Five Cocoa Operation Zones in the District					
	Adabokrom	Debiso	Essam	Fosukrom	Kaase	Total
1990/91	2830.23	7977.21	6421.848	2401.011	2791.605	22421.9
1991/92	2402.563	6771.798	5451.462	2038.202	2369.774	19033.8
1992/93	3144.803	8863.855	7135.619	2667.877	3101.884	24914.04
1993/94	2816.359	7938.114	6390.375	2389.244	2777.923	22312.02
1994/95	3361.511	9474.665	7627.336	2851.721	3315.635	26630.87
1995/96	4533.679	12778.51	10287.01	3846.124	4471.806	35917.12
1996/97	3629.248	10229.3	8234.836	3078.854	3579.718	28751.96
1997/98	4761.603	13420.93	10804.17	4039.482	4696.62	37722.81
1998/99	4620.92	13024.4	10484.96	3920.134	4557.857	36608.27
1999/2000	5274.646	14866.98	11968.28	4474.72	5202.661	41787.28
2001/02	5142	9234	7164	2291	5416	29247
2002/03	9889	24562	19272	11892	3011	68626
2003/04	9436	31337	23135	6889	15000	85797
2004/05	6925	25343	17393	6052	10286	65999
2005/06	7262.938	27943.94	23498.13	6604.375	8514.875	73824.25
2006/07	8204.75	21800.13	19240.38	5490.5	9251.313	63987.06
2007/08	7569	18238	15497	5981	6550	53835
2008/09	7174	19134	16530	6993	5265	55096
2009/2010	7205.56	16349	14397.78	6180.253	4575.005	48707.6
*2010/2011	10181	36284	27571	9672	13439	97147

Source: Ghana Cocoa Board