

# Determinants of Agricultural Projects Implementation Delays: The Case of Agricultural Projects Financed by Development Bank of Ethiopia Nekemte District

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**Abstract** The Agricultural Development Project aims to reduce rural poverty by improving and increasing agricultural production through a community-based approach to designing and implementing components that directly impact the lives of the poor in the participating provinces and districts. However, it is characterized by delays in implementation due to technical and socioeconomic factors. To improve this problem, the timely implementation of agricultural projects becomes more crucial. Thus, the purpose of this study in the DBE Nekemte district was to determine the variables influencing agricultural projects in the study area and analyze the causes of delay factors that have significantly contributed to the delay in implementing agricultural projects. The study used an entire population of project owners and employees of banks whose position was above officer, and the survey was conducted by distributing questionnaires across the eligible respondents. The data was collected from 125 respondents. From the literature review, thirty-nine (39) delay factors were identified. Factors of delay under study were categorized into five main groups: project behaviour, consultants and stakeholders, bank-related, project owner, and macroeconomic factors, and then their impacts on delay were assessed using RII and regression analysis. The three most notable factors contributing to agricultural implementation delays were identified as: (1) inflation; (2) a shortage of equity contributions; and (3) a lack of utilization of the disbursed funds (used for another purpose). The study concluded that inflation-related delay factors had the significant impact on project implementation, followed by macroeconomic factors, and the second highest was missing utilization of the disbursed fund, followed by project owner-related delays, while delays in providing services for utilities such as water, electricity, etc; followed by consultants & stakeholders-related delays, exhibited the least causes of delay. This study can benefit stakeholders dealing with agricultural projects to mitigate and establish suitable solutions for overcoming the delay.

**Keywords:** agricultural project, delay factors, development bank of Ethiopia, implementation, nekemte district

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## 1. Introduction

Globally Agricultural development is one of the most powerful tools to end extreme poverty, boost shared prosperity, and feed a projected 9.7 billion people by 2050. Growth in the agriculture sector is two to four times more effective in raising incomes among the poorest compared to other sectors; according to the World Bank report 2022 [1]. In Bangladesh, the agriculture sector contributes to about 12.68% of the GDP and 60% of the working population are directly or indirectly involved in agriculture [2].

Agriculture is every country's backbone, accounting for around 33.88% of GDP, and agriculture analytics is currently taking significant steps to support future growth

[2]. Ethiopia's agricultural economy has demonstrated incredible endurance over millennia, but it is currently deteriorating. The country is well-known for the frequent food shortages caused by droughts, abrupt natural catastrophe breakouts, pests, a lack of rainfall, and a lack of technical innovation over the years. As a result, strengthening the application of extension services in agronomic methods, afforestation, livestock and agricultural plant protection, access to financial support, and access to time-based markets may all help to enhance the community's living conditions.

Agriculture, forestry, and fishing, value added (% of GDP) in Ethiopia was reported at 37.57% in 2021, according to the World Bank collection of development indicators, compiled from officially recognized sources. Ethiopia's Agriculture, value added (% of GDP) actual values, historical data, forecasts, and projections were

sourced from the World Bank in October of 2022. This indicates an in agricultural development, in the country by the percentage of GDP contribution.

Agriculture is playing a crucial role in the global economy to enhance the life cycle of the people. However; delays in the delivery of work contracts still appear as a recurring issue in agricultural projects, which often occur from design to completion, whether in public or private works, in developing or developed countries. The consequences are disputes and litigation between the parties, cost escalation, loss of profit, poor service quality, arbitrage, overrun of the deadline defined for executing the works or closing the project [3]; and [4]. It is further observed that the delays in construction projects a fact observed globally or on a large scale, affecting not only the industry itself but the economy of nations in general; thus, negatively impacting the success of the project due to changes in the original execution schedule and the previously established costs, quality criteria and management of safety conditions [5,6,7]. Dividing work across many different projects (or other tasks) causes waiting times that lead to many delays in projects. The absence (or poor realization) of designs leads to delays, as it requires many revisions at later stages.

The literature related to the field of causes and effects of delay in construction projects has been reviewed over the last decade. Delay and cost overrun are an inherent part of most projects despite the much-acquired knowledge in project management. Although some may argue that this is negligible. It is important to note that the physical and economic scale of projects today is such that it is driven under the platform of profit to the parent organization, and of national interest (for government projects) by the degree of success defined within the Iron triangle of cost, time, and scope. It is therefore much appreciated to look at some reasons for delays and cost overruns in projects and their mitigation process, to increase the perception of project success [8].

Some crucial causes of delay according to clients are contractor's improper planning, contractor's poor site management, subcontractor issues, and skilled labor agile and productivity; contractors are insufficient client payments for completed and ongoing work, acquiring difficulties for work permit and approval, and availability and failure of equipment. When large projects deviate from their objectives (may be either in cost, completion time, performance, safety, or environmental effects), the damage caused transcends out of the contracting parties and affects the project stakeholders and the public at large [9].

The specific to Bank financed projects listed thirteen common causes of project implementation delays in the book "Project Financing" Most of these causes of delays are due to factors from that are, accumulation of interest expense attributed to implementation delay, technical problems, losses because of uninsured item's damage, losing of market competitive position, expropriation, weak management, cost overrun because of inflation, government intervention, contractor failure, price increase or insufficient raw materials, technology obsolescence, over appraisals of collateral, financial insolvency of the promoter [10].

Unexpected delays are one of the most common problems in project implementation because of not completing projects within the time-bound and on the

schedule given for one's project. And meeting project deadlines was among their biggest challenges. Project delays seem to happen more often than not. The delay in different settlements has given effects such as it will give termination of the relationship between owner and contractor. Moreover, it will also contribute to the cost and time overruns. It is generally said that the contract language is considered difficult to comprehend and they are therefore a major source of delays [11].

The Ethiopian Development Bank plays a critical role in financing government development priorities that are viewed as economic engines, such as agro-mechanization, manufacturing industry, agro-industrial commercial farming, mineral extraction, and energy. The Bank has been offering short- & medium-term financing, and also long-term financing to different kinds of viable leases and projects.

The DBE is tasked with assisting SMEs as well as medium and large-scale industrial projects that are export-oriented, such as generating foreign exchange earnings, facilitating rapid technological transfer, enhancing the nation's ability to compete, promoting agricultural sector growth, and substituting imported goods. Export commerce is also supported by the provision of loans for export assurances. Through lease financing and loanable funds provided for projects that produce import-substituting goods through the Bank's External support and credit administration, the Bank also supports the growth of small and medium-scale industries. This helps to reduce poverty in rural Ethiopia by ensuring that impoverished rural households are able to maintain access to a range of financial services. [12]. In order to fulfill the targeted goals, DBE was contributed about 3 billion Ethiopian Br. However, because their implementation was delayed, the productivity benefits were dismal, representing just a small portion of the invested [13].

The Public Financial Enterprises Agency in Ethiopia is in charge of overseeing the Development Bank of Ethiopia (DBE), a specialized state-owned development finance organization. By securing funding from both domestic and international sources and providing close technical assistance to projects that are feasible and fall under the government's priority sectors, the DBE institution seeks to advance the country's development goal while guaranteeing sustainability.

The factors such as, inadequate project commencement, inadequate project planning/design system, inadequate project monitoring and evaluation and controlling system, inadequate communication, and incorrect project closing have a detrimental impact on project completion and lead to implementation delays as to reference [14].

Delay can lead to many negative effects such as lawsuits between clients and banks, owners and contractors, in-creased costs, loss of productivity and revenue, and con-tract termination [13]. Delays have such negative repercussions that the bank won't be able to collect its loan on time, which might eventually result in a loss of business for the bank. As a result, it presents a number of issues for the bank, its clients, and the nation at large. Therefore, it is necessary to identify and assess the primary causes of project execution delays in DBE-financed projects. Furthermore, in order to provide cooperative solutions, the detrimental effects of

implementation delays must be understood and accepted.

Thus, in the Development Bank of Ethiopia; Nekemte District was one of a district established to promote economic activity and social development by financing and giving a loan to government priority area projects with high economic and social returns. However, about 71% of the districts' project loan stock is bad loans characterized by both external and internal factors that contributed to the project failures. According to the DBE Nekemte District document (2021/22) out of the total 134 projects which are financed by the Development Bank of Ethiopia, 85 projects are agricultural projects. Thus 34 projects are requested for loan repayment rescheduling, interest capitalization, and additional work.

However; agricultural projects experienced implementation schedule lag compared to what was planned during the feasibility studies submitted by the project owners to the Bank and the revised appraisal studies of the Bank. In addition, there are frequent requests for an additional loan for missing items and incomplete construction works of the project area and a subsequent loan repayment rescheduling request by most huge-sized farm projects which drive them to delay [15]. In addition, the Location of the project in the conflict and war-torn areas seriously affected the operation of the agricultural projects which challenged and minimized the project implementation delays of the district's project financing.

In order for investors to purchase capital goods for their new agricultural ventures, they must first arrange a letter of credit (LC) with a foreign supplier. Therefore, in light of the early occurrence of inflation worldwide, a nation's inflation rate may significantly affect both the value of its own currency and its exchange rate with other countries' currencies. As such, inflation is only one of several factors that work together to affect the exchange rate of a nation. The real impacts of inflation on project expenses thus far, as well as the development of cumulative future effects during the project's remaining length.

Thus, currently in the DBE Nekemte District, the new applicants for the agricultural projects were about 5 in numbers. Therefore, due to the delay of LC openings and the inflation problem they couldn't implement in the estimated time [16]. Given the current state of affairs in the nation, DBE has decided to accept no project failures beyond 2020 G.C.; nevertheless, this year has already gone without living up to this proverb. This is assumed to be achieved through developing and tightening the credit management system of the Bank. However, a hundred percent project success is impossible in project finance because of uncertainty and dynamism in the global economy, and the internal weakness of the projects especially agricultural projects.

In addition to this, currently, it is common to look out for foreclosure advertisements from different Banks on television every day and this simply indicates the failure of many projects. Case example; in a very recent data of DBE Nekemte District both rain-fed and non-rain-fed agricultural projects financed by the district were still under the non-performing loans (NPLs) stage without being fully implemented (report from the DBE Nekemte District 2022). This situation resulted in great apprehension on the part of potential investors not to look for Bank finance with the perception that credit is the main cause of project failure.

Moreover, the failure of projects increases the sunk cost of the country irrespective of their ownership since fixed investments of most projects are purpose-oriented and require high switching costs.

The main purpose of this study was to identify the determinants and causes of delay factors and their impact (effect) on project completion in the study area. Earlier studies either considered the causes or the effects of project delays, separately. This study takes an integrated approach and attempts to analyze the impact of specific determinants of implementation delays on specific effects. The literature review was made for this particular research study on the causes and effects of delay in construction projects since some of the Banks' clients in the industry sector projects are turn key projects using it will be applied for project delay in general.

In this study, after an in-depth review of the empirical literature, the researcher has concluded that there is no literature available on the determinants of project implementation delay factors in Nekemte District especially for agricultural projects. Also, in DBE, Nekemte District, the loan status is registered above 90% Non-Performing Loans [17]. This may maybe due to the factor that the researcher wanted to study. This study therefore aimed to investigate the actual factors influencing project implementation delays in DBE the case is an agricultural project financed by Nekemte District.

Also, the researcher identified the major determinants of project implementation delays during the financing of projects at DBE Nekemte District. Many researchers who focus their study on determinants projects implementation delays are studied on implementation delays of other non-agricultural projects such as manufacturing projects, construction projects, mining and industry projects, and so on. Also, other researchers found their research results for DBE in other districts. However, no one has studied on determinants of agricultural project implementation delays in the case of DBE Nekemte District.

## 2. Objective of the Study

The general objective of this study is to identify the major determinants of delay in project implementation and factors that contribute to the agricultural projects' implementation delay of the Development Bank of Ethiopia Nekemte District.

### Literature Reviewed

An explicit theory of project management would serve various functions. In prior research, the following roles of a theory have been pinpointed. Delays can trigger negative effects on factors such as loss of productivity, revenue laws between owners and contractors' contract termination, and increased costs. Finding the causes and effects of delays on project delivery on time was the main aim of the project [18].

A theory explains observed behaviour and contributes thus to understanding. A theory provides a prediction of future behaviour [19]. The other project implementation delays were the wrong project location, lack of stakeholder engagement, lack of funds to complete processing and refrigeration facilities, lack of waste

disposal facility, and lack of poultry farms with capacity to supply the abattoir [20]. Project success can be defined as meeting goals and objectives as prescribed in the project plan. A successful project means that the project has accomplished its technical performance and maintained the successful operation of its purposes [21]. Delay could be defined as an act or event that extends the time required to perform the tasks under a contract. It usually shows up as additional days of work or as a delayed start of an activity [22]. In construction, the delay could be defined as the time overrun either beyond the completion date specified in a contract, or beyond the date that the parties agreed upon for delivery of a project [9].

A few selected related articles were presented in this section on the causes and effects of delays in construction works. [11] studied construction delays; the study developed a decision support system for construction delay analysis called (DAS). The main categories of delays in DAS based on the study are labor, management, equipment engineering, delays of external, weather, owner, material, subcontractors, and contractors. In Nigeria, delays and cost overruns cause construction projects. Factors that cause delays in construction projects shown by the results are poor contract management, storage of material, financing and payment for work, changes in site conditions and improper planning.

Delay in construction projects means increasing the time to carry out the planned completion as stated in the contract documents. Inadequate completion of work is a deficiency in the level of productivity and of course, all of this will result in a waste of funding, whether in the form of direct financing spent on government projects or in the form of swelling investment and losses on private projects. The active role of management is one of the main keys to the success of project management. An assessment of the project schedule is needed to determine the fundamental change steps so that delays in project completion can be avoided or reduced [23].

On the other side with relation to the factors of delay, they can be identified as internal and external; whereas

those related to customers, designers, service providers, and consultants are regarded as internal causes, while the external causes are related to climate issues, suppliers and the government [24].

In Vietnam's government construction projects, [25] categorized 28 delay reasons into six delay types. Factor analysis was used to develop a conceptual model and by using regression analysis, it was found that contractor and owners-related delay factors have a significant effect on the project's timely completion. According to [14] study determinants of project implementation delay on DBE found that poor project initiation, poor project planning/design system, poor project monitoring, and evaluation and controlling system, poor communication, and improper project closure affected the project completion negatively which is factors of delaying.

### Conceptual Framework of the study

The conceptual framework illustrates the causal relationship between the independent variable and the dependent variable. The delay in agricultural project implementation is dependent on independent variables. Agricultural project implementations are considered completed successfully when executed within the schedule and time frame. When any of the independent variables fail, then there is a higher likelihood that the dependent variables will also fail. This research seeks to justify these. It is therefore imperative to ensure that the independent variables are done to the satisfaction of stakeholders (DBE, Nekemte District & project owners) consequently ensuring on-time agricultural project implementation completion.

In this research, the independent variables that constitute project objectives include the extent of the time overrun on implementation of agricultural projects in Nekemte District including sub-branches under Nekemte District, the determinant factors causing implementation of agricultural projects in Nekemte District and ranking the significant factors which contribute to the agricultural projects' implementation delay as depicted in Figure 1.

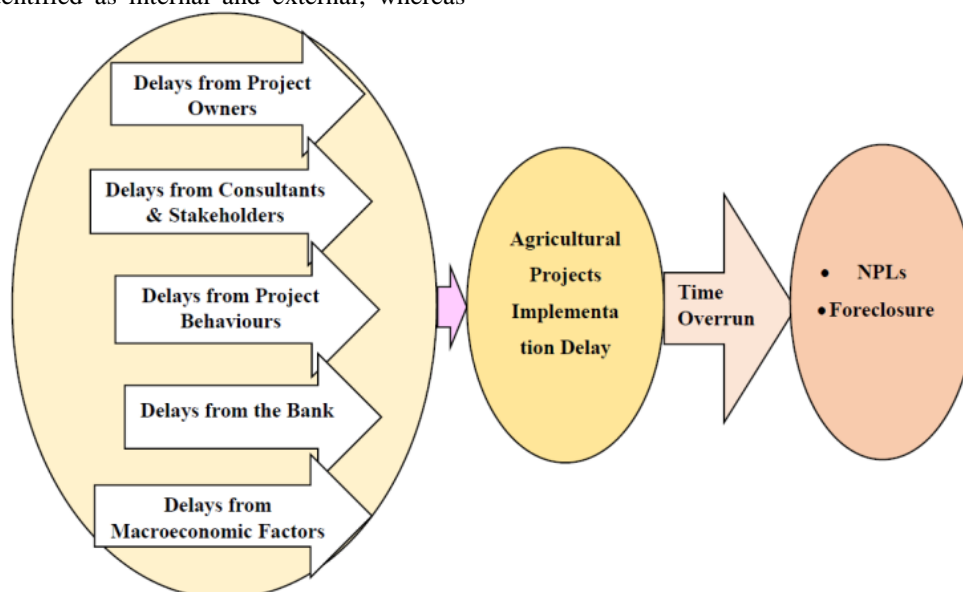


Figure 1. Conceptual Framework of the Study (Source: designed from reviewed pieces of literature)

### 3. Material and Methodology

#### Description of the Study Area

The study was carried out in the Development Bank of Ethiopia, Nekemte District. It is located in the Western part of the Oromia National Regional State, East Wollega Zone, Ethiopia, lying between the latitude of 9° 04' 60.00" N and 36° 32' 59.99" E longitude, with an elevation 2088 meters above sea level. It is the administrative center of Guto Gida Woreda. The district capital town, Nekemte is about 334 km away from the capital city of Oromia, Finfinnee Ethiopia, or Addis Ababa (Ethiopian CSA).

Development Bank of Ethiopia, Nekemte District has five branches and four credit sub-teams. Those are Nekemte Branch, Assosa Branch, Gimbi Branch, Dembi Dollo Branch & Shambu Branch, and Loan Appraisal Team, Loan Approval Team, Project Rehabilitation & Loan Review Team (PRLRT) [Table 1](#).

**Table 1. Work Units under DBE Nekemte District, their grades, and the location of the branch**

Sr. No.	Work Unit under Nekemte District	Grades of the Branches	Location of the work unit
1	Nekemte Branch	A	East Wollega Nekemte town
2	Assosa Branch	A	Benishangul Gumuz Region Assosa Town
3	Gimbi Branch	C	West Wollega Gimbi Town
4	Dembi Dollo Branch	C	Kellem Wollega Dembi Dollo Town
5	Shambu Branch	C	Horo Guduru Wollega; Shambu Town
6	Loan Appraisal Team	-	DBE Nekemte District
7	Loan Approval Team	-	DBE Nekemte District
8	Loan Review Team	-	DBE Nekemte District
9	Project Rehabilitation and Loan Review Team (PRLRT)	-	NDBE Nekemte District

Source: Nekemte District Administration Team Annual Report (2022)

However; from the listed work units under Nekemte District; only two branches have an "A" grade. Therefore, the project's Financing is available with grade "A" branches and PRLRT. Grade "C" branches are served for an SME loan only. Also, the project loans served to customers through these branches are mostly agricultural projects. Therefore, this study was focused only on agricultural project financing. Hence the total number of agricultural projects found at Nekemte District was about 85 [Table 2](#).

**Table 2. Number of Projects with each Operating Unit**

Sr. No.	Work Unit under Nekemte District	Number of Agricultural projects financed	Remark
1	Nekemte Branch	4	
2	Assosa Branch	29	
3	PRLRT	52	
	Total	85	

Source: Nekemte District Administration & Planning Team Annual report (2022) [\[26\]](#)

#### 3.1. Data Types and Sources

Primary as well as secondary data were used in this investigation. Since all agricultural project borrowers as well as the district's appraisal and PRLR teams were the major source of information, questionnaires and interviews with them were used to gather this information. We'll provide them an open-ended and closed-ended structured and semi-structured questionnaire to complete and gather. This means that other projects for which DBE can provide a loan are not included since the district's land is mostly appropriate for agricultural projects, and in this instance, the majority of the available customers are likewise agriculturally based debtors. Because these loans are housing or personal loans that are exclusive to bank employees, and because the repayment terms for these credits are highly secured as long as the employee works for the bank, the staff borrowers were also kept out of the general population. Moreover, these loans were not eligible for project finance or working capital loans since they did not meet the conditions. Secondary data was gathered from project files or from papers that have been documented and are now in the Bank's possession.

In order to learn about the documents and information of the study's borrowers as well as to determine the factors that contributed to project implementation delays in prior years, secondary data were employed as a source of information. Secondary data will specifically be drawn from yearly reports, bank loan portfolios, and other publications.

#### 3.2. Method of Data Collection

The investigator concentrated on gathering primary and secondary data during the data collection process in order to carry out this investigation. To augment the secondary data for the analysis of the qualitative portion of the study, structured questionnaires and interviews were used to collect primary data. On the other hand, the DBE, Nekemte District, individual file of various projects from Credit Process Teams, Project Rehabilitation and Loan Recovery Team, and by consulting and reviewing various Bank records were used to gather secondary data. Additionally, it contains quarterly and yearly performance reports that were gathered in order to offer an explanation analysis of the study topics. The targeted respondents were given a questionnaire to complete using an organized format in order to determine the main causes of delays, their frequently observed consequences, and ways to reduce them.

Additionally, data from the survey that was administered was analyzed using statistical techniques, and the results were presented in the form of a discussion section, suggestions, and conclusion. Preliminary descriptive statistics that look at the overall periodic trends in the data are part of the process.

#### 3.3. Population and Sampling Method

To define the sampling technique employed in this research, due to necessary to examine the total agricultural

projects of DBE Nekemte District, in this study the total agricultural projects owner and with Bank side the total officers, sr. officers, & managers are purposively selected. Because, respondents who are employed in this research have specific attributes/traits, experience, knowledge, skills, and exposure to an event. Thus, in this research purposive sampling technique where employed.

Hence; to have full information also in this District agricultural projects were not as much as many in amounts. Thus, to gather information, the survey questionnaires were distributed by hand and for those who are far from the researcher delivered by mailing to the target respondents such as project owners /management of the project, and DBE Bank staff who are taking part in the agricultural project implementation of those projects

financed by DBE Nekemte District. Hence, principal officers from each team (appraisal team, approval team, and PRLRT), senior loan officers from different teams, Nekemte district, Nekemte branch and Assosa branch, and Nekemte District manager, Nekemte Branch and Assosa branch managers were interviewed; their comments and ideas were used in research interpretation and recommendation of the study.

Data which was obtained from the questionnaires were used to analyze with an appropriate method which may result in the success of the research. The relevant source of secondary data was taken from DBE Nekemte District's reports and documents. The total numbers of respondents employed in this thesis are taken from both project owners and bank employees are described as follows [Table 3](#):

**Table 3. Total Number of Respondents Employed in the Study**

S/N	Respondents from:	Role of respondents /Respondents Title	Number of Respondents who can fill the questionnaire	Number of Sampled respondents	Number of respondents who respond the questionnaire
1	Project Owner	Project Owner (Self)	74	74	71
2		Project Manager	11	11	11
3	Bank	Officer	27	27	27
4		Sr. Officer	10	10	10
5		Team manager	3	3	3
6		Manager	3	3	3
	Total		128	128	125

Source: Survey Data, 2022

### 3.3.1. Formulation of Questionnaires

Finding the root cause of project implementation delay causes and the creation of a questionnaire are crucial steps that are necessary for the research to be successful. The literature study makes clear that several academics have previously put forth a great deal of effort to identify the reasons behind delay. After talking with field experts, the five primary delay factors project owner, project behaviour, bank-related, consultant & stakeholder, and macroeconomic factors that are pertinent to agricultural projects were taken from the literature review for this study.

Related elements that influence the fundamental five chosen major factors which were enumerated based on the information that was available were included to the final questionnaire. A five-point Likert scale, with (5) Very highly contributing, (4) highly contributing (3), Medium contributing, (2) Low contributing, and (1) Very low contributing, would be used to assess the effect of the delay factor. The primary tool used to gather data from intended respondents was the questionnaire.

To accomplish the above-described study goals, the questionnaire was divided into three components. The respondent's general information was presented first in Section 1. The project name, length, cost, percentage of completion, designation, qualification, and, if required, email address was among the inquiries. The respondent's views against each delay reason pertaining to the Owner, Consultant, Contractor, Project, Bank, and other variables, etc., were presented in Section 2. Respondents' thoughts about the length of agricultural implementation delays they encountered throughout project execution are collected in Section 3.

## 3.4. Data Analysis

Descriptive statistics were utilized for analysis and interpretation after the data was meticulously coded and cross-checked for consistency using the previously mentioned approaches. To analyze the data and determine frequency distributions, means, standard deviations, reliability, and correlations between delay-causing factors and ranking of causes, Microsoft Excel and SPSS software were utilized. Data analysis included both descriptive and inferential statistics. The following statistical tests and methodologies were used in the analysis: a) Pearson's coefficient of Concordance (Kendall), b) multi-collinearity test, c) reliability analysis, and e) regression analysis. The survey data consisted of the 5 major delays that come from and would be analyzed. That delay comes from Project Behaviour, the project owner, the Bank, consultants, and stakeholders, and from Macroeconomic factors. Each of them has a sub-cause under it.

A quantitative data analysis technique of putting the Relative Importance of Index (RII) for each cause of delay was used to analyze the data which was collected from primary and secondary data sources. The analysis aims to establish the relative importance of the various factors identified as responsible for project implementation delay. Researchers [27] used the RII method to determine the relative importance of the various causes of delays. The same method was adopted in this study. RIIs are calculated for each factor as in the following equation: by summing up the scores given to it by the respondents. The Relative Importance Index (RII) is calculated using the following formula [28]:

The relative importance index, RII, was computed for each cause to identify the most significant causes. The causes were ranked based on RII values. From the ranking assigned to each cause of delays, it was possible to identify the most important factors or causes of delays in

the Indian construction industry.

$$RII = \frac{\sum PiUi}{AN} = \frac{5n5 + 4n4 + 3n3 + 2n2 + 1n1}{5N} \quad (1)$$

Were,

RII = relative importance index

Pi = respondent's rating of cause of delay

Ui = number of respondents placing identical weighting/rating on cause of delay

N = total number of respondents

A = the highest Weight i.e., 5 in this case)

n = the highest attainable score on cause of delay

The RII value had a range of 0 to 1 (0 not inclusive); the higher the RII, the more important the cause of delays. The causes were ranked based on RII values. The Relative Importance Index for all the delay factors is calculated using equation (1) above. Hence, RII and Rank of Delay Factors according to stated independent variables will be discussed after the collection of data is finalized.

## 4. Result and Discussion

### 4.1. Survey Result

The chapter has two main sections. The first section deals with the results of descriptive analysis relating to socioeconomic, demographic characteristics, and various agricultural activities undertaken by sample household heads. In the second section, the regression results related to causes of agricultural project implementation delay and factors affecting agricultural project implementation have been presented and discussed.

As described in the third chapter, the sampling was the total population of the target population. Therefore, the questionnaires were prepared and distributed to 85 investors (project owners) and 43 Bank officers; a total of 128 respondents the questionnaires were distributed. Out of the 128 questionnaires were distributed to the target respondents selected from private investors and Development Bank of Ethiopia in Nekemte District's employees, 125 questionnaires returned. However, 2 questionnaires unable to provide information regarding the questionnaires, and one questionnaire was recorded invalid, and 125 questionnaires were deemed valid. This implies that 97.6% of information was collected from the investors/professionals who participated in the survey. This percentage is acceptable for analysis and reporting of the findings of this study [29].

Moreover, most of the respondents who took part in the questionnaire survey are very experienced professionals in the bank and project owners, this added to the quality of

the feedback and the findings of the study.

### 4.1.1. Descriptive Results

#### 4.1.1.1. Respondents Profile

There are several subsections that include the descriptive statistics covered in this section. Socioeconomic and demographic traits are covered throughout the conversation. Professionals with extensive experience in DBE Nekemte District agricultural projects including project behavior, project owner, bank-related, consultant and other stakeholder, and macroeconomics chosen to participate in the study were among the respondents. Project directors, bank officials, team leaders, managers, and engineers for agricultural sites made up the study sample.

The project owners and bank workers whose ranks were above officer received questionnaires during the survey period; as a result, Table 4.1 below shows the respondents' categories and profiles with relation to occupation and relevant experience. The group of respondents who own agricultural project has the largest frequency (63.6%), and among bank workers, bank officers, seniors, team managers, and managers of DBE, Nekemte District's work units make up 34.4% of the sample (Table 4). In terms of their experiences implementing agricultural projects, project owners and bank staff reported that those with less than five years of experience made up 25.6%, those with five to ten years of experience made up 32%, those with ten to fifteen years of experience made up 32.8%, and those with more than fifteen years of experience made up 4.8% (Table 4).

In general, there are 32 respondents who have the least amount of experience implementing agriculture, while there are only 6 respondents who have the most years of experience. The majority of participants in the questionnaire survey are also highly seasoned specialists working on the agricultural project, which improved the Caliber of the comments and research results.

#### 4.1.1.2. Gender of the Respondents

The respondents' sex-wise analysis is displayed in the above graph. Out of the 128 sets of questionnaires issued, 85 were completed by clients and 43 by bank workers. Out of the 125 completed questionnaires, 82 were completed by clients and the rest of the 43 were completed by employees of the bank. There were 61 men and 21 women among the total respondents who were clients, while there were 41 men and 2 women among the total respondents who were bank workers. This indicates that there were more men than women among the respondents, both from the perspective of the clients and the staff (see Figure 2).

Table 4. Respondents Profile

Sr. No.	Respondents	Experiences (years)				Total	% By Professional Roles
		Less than 5 Years	5-10 Years	10-15 Years	Above 15 Years		
1	Project Owner	17	22	32	5	82	63.6%
2	Bank Employees	15	18	9	1	43	34.4%
	<b>Total</b>	<b>32</b>	<b>40</b>	<b>41</b>	<b>6</b>	<b>125</b>	<b>100%</b>
	<b>% By Experience</b>	<b>25.6%</b>	<b>32%</b>	<b>32.8</b>	<b>4.8</b>	<b>100%</b>	<b>100%</b>

Source: Survey Result 2022; Own computation

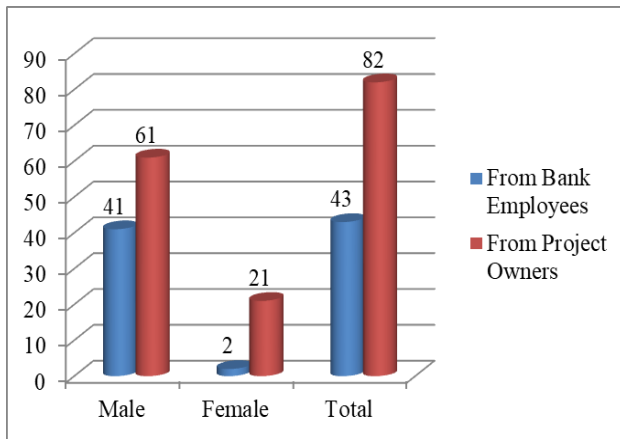


Figure 2. Gender of the Respondents

#### 4.1.2. Descriptive Statistics for Delay Factors Variables

**Project Behavior Factor:** The project behaviour indicates that the project's execution may be impacted by its status as an agricultural project, which may cause delays in implementation or cause it to be abandoned entirely. This is further clarified by the nature of the project, which is contingent upon the deadline. Projects may therefore vary from one another. Therefore, characteristics like temporariness, originality, and gradual elaboration might influence how projects behave [30].

The differences between the findings of traditional project management research and the developments in project behavior are emphasized in [30]. Project studies are beginning to focus more and more on human factors; thus, it is incumbent upon us to make sure that the theories, models, and methodologies employed are up to date, suitable, and pertinent. It calls into question our ability to explain and evaluate outcomes as well as our comprehension of the behavioral and social dynamics at play inside initiatives. Thus, the project behavior delay factor analysis's descriptive result shows that the project behavior mean was 1.421, with a 0.696 standard deviation (Table 6). This suggests that, among the implementation delay factors chosen, there is little variation in the project implementation delay factors.

**Consultant & Stakeholder:** There are several tasks to complete while beginning a project, including organizing your timetable, laying out dependencies and milestones, identifying the appropriate tools, creating the project budget, and assigning resources. The most challenging (and crucial) step, however, is selecting the correct team members. After all, the project's success is dependent on more than just its finances, objectives, and concepts. Engaging with the appropriate stakeholders from the outset may improve project management and yield superior results. An important part of the project's execution was the involvement of stakeholders. The government, outside clients, vendors, and contractors are examples of stakeholders. Insufficient supervision specialists have been identified as a contributing reason to delays [31].

Project consultants serve as advisers and planners, guiding the head of the project management team in developing and executing ideas related to process or quality enhancements. Project management consultants

are an invaluable resource for any firm, as they facilitate the identification and correction of inefficiencies in workflows and procedures by project stakeholders. Managing many projects concurrently is a common task for project consultants. These projects may be business-specific or umbrella efforts.

The ability of agricultural projects to withstand risks is aided by the presence of consultants and stakeholders. The consultant and stakeholder factor contributes to the improvement of agricultural projects' risk-averseness, which is subsequently focused on the adoption of new technologies and the diversification of crop production and revenue streams. During the study period, the mean of causes of delay attributed to consultants and stakeholders was 2.115 with a standard deviation of 1.309 (Table 6).

**Economic Factors:** Farming is impacted by economic variables many economic issues, including labor, macroeconomic policy, currency rate fluctuations, inflation, and labor, have an impact on agriculture. Accordingly, Table 6 shows that the study's average of the reasons of delay per economic element was 4.261, with a standard deviation of 0.793.

**Project Owner:** Transparency and monitoring can be challenging on large, complicated projects, but project owners must maintain control over their work. The owner depends on being informed of issues and delays so that they may take action in the event of future time or expense overruns. This requires a certain level of trust between the owner and the other teams as well as the contractor. Due to the various sub-factors, they have incorporated into their projects a list of which is provided in this thesis project owners may be to blame for implementation delays. Accordingly, the study's project owner reasons had a mean of 3.993 and a standard deviation of 1.129 (Table 6).

**Bank Related Factors:** In accordance with national policies and plans, the bank finances initiatives that would most significantly reduce poverty and successfully advance the socioeconomic growth of the recipient nation. The goal of this study is to identify the most significant reasons for project implementation delays for DBE-financed projects based on input from the bank and its clients, who are the main project participants. The study finds and evaluates whether the main reasons for project implementation delays are related to the bank's policies, practices, and operations or to its clients.

The Bank provides financing for projects that will effectively contribute to the economic and social development of the country concerned and have the strongest poverty reduction impact in conformity with the country and strategies. This study investigates the causes of delay in project implementation for DBE financed projects to determine the most important according to the key project participants; the bank and its customers. The research identifies and analyses whether the major causes of project implementation delay are attributed to clients or the bank's policies, procedures, and operations. Therefore, this study looked at the factors connected to the bank that contribute to delays in the implementation of agricultural projects. Consequently, the mean of bank-related causes of delay was 4.064 with a standard deviation of 0.930 in the descriptive analysis of this kind of cause in relation to other detected reasons (Table 6.)

**Agricultural Implementation Delays:** The descriptive

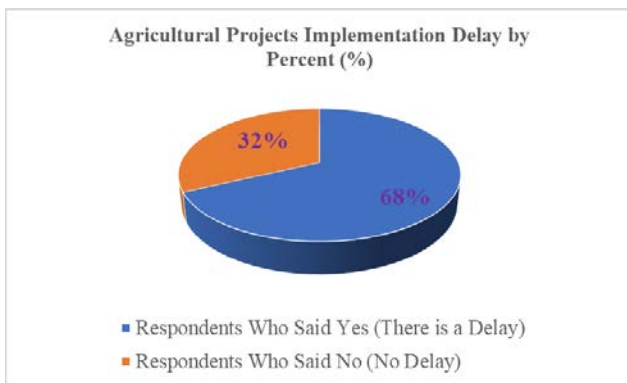
analysis outcome for the dependent variable shows that, of the 125 respondents, 85 respondents, or roughly 68% of the total, answered "Yes" to the question of if agricultural implementation delays, and 40 respondents, or roughly 28% of the total respondents, answered "No." This illustrates the wide range of replies that the respondents had (Table 5)

**Table 5. Respondents Response on the Occurrences of the Agricultural Project Implementation Delay**

Type of Var.	Respondents answer	Frequency	Percent	Valid Percent	Cumulative Percent
Dummy	Yes	85	68.0	68.0	68.0
	No	40	32.0	32.0	100.0
<b>Total</b>		<b>125</b>	<b>100.0</b>	<b>100.0</b>	

Source: Survey Result; 2022

**Agricultural Project Implementation Delay Occurrence percentage**



**Figure 3. Respondents Answer on Agricultural Project Implementation Delay in % (Source: Survey Result; 2022)**

**Table 6. Descriptive Statistics of Variables used in Delay Factors Estimation**

Sr. No.	Delay Factors	ID	Mean	Std. Deviation
1	Project Behaviour	PB	1.4215	0.69635
2	Project Owner	PO	3.9926	1.12947
3	Bank Related	BR	4.0642	0.93000
4	Consultant & Stakeholder	CS	2.1154	1.30876
5	Macroeconomic Factor	ME	4.2610	0.79300

Source: Survey Result; 2022

**Descriptive Analysis of Delay Factors**

**4.1.3. Ranking of the Delay Determinants (All Sub-Factors)**

Since it is essential to rank the delay causes according to respondents' understanding of their criticality, descriptive analysis was conducted using the data gathered from the questionnaire survey. In this study, respondents' perceptions of the delay causes have been ranked using descriptive statistics, specifically the mean score. The ratings that the respondents had assigned to each of the delay factors were entered into SPSS version 26, which was then used to do a statistical analysis on all of the questionnaire responses in order to draw additional conclusions. Below (Table 7) is a table that ranks each delay factor.

**Table 7. Ranks of Sub-Factors of Delay by their Mean Score**

Descriptive Statistics			
ID	Sub-Factors of Delay	Mean Score	Rank
ME	Inflation rate	3.912	1
PO	Shortage of equity contribution	3.568	2
PO	Miss utilization of the disbursed fund (Using for another purpose)	3.544	3
BR	Tendency of the executing agencies to go by the terminal dates of opening L/Cs	3.528	4
BR	Terms and conditions of the bank before and after the loan Approved	3.376	5
ME	Fluctuation of exchange rate	3.368	6
BR	Inaccurate estimates of costs and expected results to enable decisions to be taken on project financing	3.368	7
PO	Conditions for effectiveness of the loan are not fulfill in time	3.336	8
PO	Slowness in decision making process by the owner managers	3.240	9
BR	Delay in social rebels around the project area	3.200	10
BR	Inadequate release of funds	3.176	11
BR	Delay in obtaining the required machineries and raw materials from concerned suppliers	3.152	12
ME	Serious budget deficit resulted from fluctuation and price	3.104	13
BR	Delay in project collateralizing activities in the concerned governmental office	3.048	14
ME	Interest Rate	3.000	15
PO	Low capacity of the promoter to cover unseen costs while planning the project	2.872	16
ME	Labor force supply	2.840	17
PO	Land overlapping issues during collateralizing the agricultural project.	2.768	18
BR	Exception and deviation of the bank's president in relation to agricultural project implementation	2.768	19
PB	Providing low technical advice (guidance and support of the client)	2.760	20
PB	Poor implementation schedule on land development activities	2.688	21
ME	Macroeconomics Policy	2.544	22
PB	Poor Project Planning & Scheduling	2.464	23
CS	Delay in clearances from various regulatory agencies	2.368	24
CS	Incompetent project management Consultant	2.088	25
PB	Management problems such as personnel, labor and contractor disputes, mismatch of equipment, etc.	1.944	26
PB	The occurrence of lots of missed out items (machineries and equipment) and technical works	1.936	27
CS	Attention on wrong way	1.912	28
PB	Remote location of site	1.824	29
CS	Submitting non-viable study result	1.816	30
CS	Poor on time accomplishment of feasibility study	1.792	31
PB	Complexity of project	1.744	32
PB	Seasonality of works to be performed	1.696	33
PB	Lack of coordination & information between the parties	1.656	34
CS	Inept landing Consultant	1.640	35
PB	Utilization of agriculture-based engineering works and ideas on various items	1.608	36
CS	Frequent intermission of infrastructure which leads to delay in implementation of machineries	1.600	37
CS	Insufficient supervision of consultant	1.552	38
CS	Delay in providing services for utilities such as water, electricity, etc	1.352	39

Source: Survey Result; 2022

The three most important criteria, as indicated by the mean ranks in the preceding table, are the following: (1) inflation rate; (2) lack of equitable contribution; and (3) improper use of the disbursed amount (using it for another purpose). It is understandable why the most frequent and significant reason for project delays at this time is the inflation rate. A variety of complicated problems, whether imposed from the outside or developed spontaneously, may occur from the conception to the completion phase of agricultural projects due to their unexpected character. Nonetheless, in order to prevent delay, the owner must respond quickly in these situations. Sadly, as the rankings show, most of the agricultural projects in the DBE Nekemte District are delayed because the owners are unable to make decisions and take action promptly.

## 4.2. Regression Analysis

### 4.2.1. Hypothesis Testing

Prior to moving on to the estimate of the model's parameters, which are derived from the elements that have a substantial impact on the delay in agricultural implementation? This was accomplished by testing the theories. Thus, the hypothesis that was tested was that there would be no significant relationship between any of the explanatory variables in the model and the delay in agricultural implementation (i.e., H<sub>0</sub>: there will be no significant relationship between the delay in agricultural projects and any of the explanatory variables & H<sub>1</sub>: there will be a significant relationship between at least one explanatory variable and the predicted variable). Stated differently, the aim of the study was to determine if the explanatory factors included in the delay model have a substantial impact on the implementation delay of agricultural projects.

Therefore, SPSS version 26 was used to examine the model parameters. Therefore, these variables also explain why there is a considerable association between some delay factors and the delay in implementing agricultural projects. As a result, the null hypothesis was rejected, confirming that there is a substantial correlation between at least one variable and the delay in implementing agricultural projects.

### 4.2.2. Determinants of Agricultural Projects Implementation Delays

By examining the sub-factor of delays in agricultural projects, the study's reasons of delays are estimated. Five explanatory variables that were investigated to see whether or not they had a significant association with agricultural implementation were added to the model. One cannot rely on the evaluation of efficiency, despite the fact that it is crucial. Finding the main causes of delays is essential to recommending appropriate economic strategies.

In order to determine this, the model's agricultural projects implementation delays were regressed on variables that explain differences in delay factors, such as those linked to macroeconomic conditions, project owner behaviour, bank relationships, and consultants and stakeholders. Table 177 clarifies whether the listed explanatory variables have significant relationships with agricultural projects implementation delay or not. The study

makes an effort to look at the factors that contribute to agricultural implementation delays using the provided model. This study is particularly interested in the coefficients of the explanatory variables in the delay factors. The regression analysis's significant value was determined by including variables as reasons of delay in the explanation of the impacts of causes of delay.

The result of the regression model showed that among the 5 variables used in the analysis, macroeconomic factors, project owner factors, and bank-related factors negatively and highly significantly affect the agricultural project implementation. Variables like project behaviour and consultants & stakeholders were found insignificantly relationships with agricultural project implementation delays.

Generally, by using the SPSS version 26 of the regression model; they were discussed properly and identified whether they are significant or insignificantly related to agricultural project implementation delays. The results of explanatory variables (factors affecting agricultural project implementation delay) are adequately discussed. Therefore, before running the econometric analysis, the data were tested against different econometric problems. Consequently, the data were checked for Multicollinearity, and Cronbach's alpha data reliability was tested the result showed the absence of severe problems in the data (see Table 8 and Table 9 respectively).

#### 4.2.2.1. Multicollinearity Test

The multicollinearity test was done using the Variance Inflation Factor (VIF), and also to check the multicollinearity problem among all variables entered in the model. According to [32], a value of VIF of more than 10 is usually considered an indicator of serious multicollinearity and should be excluded from the model. On the other hand, variables having a variance inflation factor of less than 10 are believed to have no serious multicollinearity problem and can be included as explanatory variables in the model. Also, the value of 1/VIF greater than 10 percent is assumed to be no multicollinearity problem. Therefore, the test for multicollinearity using both methods confirmed that there was no severe linear relation among explanatory variables (Table 8).

Table 8. Multicollinearity Test

Coefficients <sup>a</sup>			
Model		Collinearity Statistics	
		Tolerance (1/VIF)	VIF
1	PB	0.868	1.152
	PO	0.489	2.045
	BR	0.420	2.381
	CSR	0.665	1.503
	MER	0.661	1.513

a. Dependent Variable: AID

Source: Model output; 2022

#### 4.2.2.2. Cronbach's Alpha Data Reliability Test

The reliability coefficient was calculated to demonstrate the internal consistency of the data, and Cronbach's Alpha was calculated using SPSS Statistics Software (version 26). The internal consistency of scale items is measured by

Cronbach's alpha. According to [33], an appropriate analytical tool for achieving the study's goal was the Relative Importance Index (RII). This served as the basis for the analysis of the questionnaire ratings in order to determine the mean rating point that corresponds to the rating of each group member. Every computation was performed utilizing the RII formula found in Equation (1) [33].

Prior to the examination of the questionnaire survey findings, the internal consistency of the respondents' responses using the Likert scale was assessed using Cronbach's Alpha data reliability results. According to the research purpose of this study, the reliability test results were obtained for five categories of the elements that affect the delay in implementing agricultural projects. Additionally, using SPSS Version 26, the internal consistency of the delay is calculated using the derived Cronbach coefficient (Table 9).

Table 9. Internal consistency of Cronbach's Alpha

Sr. No.	Cronbach's alpha, $\alpha$	Internal consistency
1	$\alpha \geq 0.8$	Excellent
2	$0.8 > \alpha \geq 0.7$	Good
3	$0.7 > \alpha \geq 0.5$	Satisfactory
4	$\alpha < 0.5$	Poor

Sources: Gliem, J. a, Gliem, R.R., 2003. Calculating, interpreting, and reporting Cronbach's Alpha Reliability Coefficient for Likert-type Scales

The findings for the five categories of reasons why agricultural projects in DBE, Nekemte District, and experience implementation delays are shown in Table 10, which is the Cronbach's Alpha reliability test results. The reliability test yielded an overall agricultural projects implementation delay factor coefficient of internal consistency of 0.985, as shown in the accompanying table. This suggests that there is excellent reliability in 98.5% of the respondents' responses on the reasons behind delays in agricultural projects. Additionally, the reliability tests of Cronbach's Alpha about the total delay factors for agricultural project execution are shown in Table 10.

Table 10. Cronbach's Alpha Reliability Test

Reliability Statistics	
Main Factors	Cronbach's Alpha Value
Project Behavior Factors	0.982
Project Owner Factors	0.988
Bank Related Factors	0.994
Consultants and Stakeholders Factors	0.980
Macroeconomic Factors	0.984
<b>Overall Cronbach's Alpha</b>	<b>0.985</b>

Sources: SPSS Output; 2022

4.2.2.3. Cronbach's Alpha Reliability test for all Independent Variables

Cronbach's alpha coefficient, which is frequently used to evaluate the reliability of questionnaires with many Likert scale questions, was used to measure reliability. The study of [34] demonstrates that preliminary research accepts values as low as 0.6 for Cronbach's alpha, despite the typical acceptance of 0.7 as the lower limit. In the current study, the results show that the Cronbach's alpha for delays linked to project behaviour, project owner,

bank-related, consultants & stakeholders, and macroeconomics were, in that order, 0.982, 0.988, 0.994, 0.980, and 0.984 (Table 10).

Before going over the analysis's findings in this section, 39 elements that affect the timing of agricultural project execution in DBE Nekemte District have been found, assessed, and divided into five main categories as part of the study's goal. The Relative Importance Index (RII) and Mean Values are used to rank these elements in each category. Furthermore, the RII classification table shown in Table 11 is used to categorize the RII rankings in order to determine the relative contributions of the various delay causes.

Table 11. Classification of RII

Sr. No.	Level of Contribution	Relative Importance Index (RII)
1	Very Low	$0.0 \leq RII \leq 0.2$
2	Low	$0.2 < RII \leq 0.4$
3	Medium	$0.4 < RII \leq 0.6$
4	High	$0.6 < RII \leq 0.8$
5	Very High	$0.8 < RII \leq 1.0$

Source: Nadirah Durus (2015); Construction Noise Annoyance among the Public Residents

4.3. Analysis of the Factors that Influence Agricultural Project Implementation Delays

4.3.1. Analysis of Delay Factors Related to Project Behavior (PB)

Table 12. Analysis of Delay Factors Related to Project Behavior (PB)

ID	Delay Factors	RII	RII Rank	Level of Contribution
PB	Utilization of agriculture-based engineering works and ideas on various items	0.3136	9	Low
	Lack of coordination & information between the parties	0.3312	8	Low
	Poor project planning and scheduling	0.4928	2	Medium
	Complexity of project	0.3488	6	Low
	Poor implementation on schedule on land development activities	0.5376	1	Medium
	The occurrence of lots of missed out items (machinery and equipment) and technical works	0.3872	4	Low
	management problems such as personnel, labor and contractor disputes, mismatch of equipment, etc.	0.3888	3	Low
	remote location of site	0.3648	5	Low
	Seasonality of works to be performed	0.3392	7	Low

Sources: Survey result; 2022

Table 12 illustrates that, according to respondents' perspectives, the two most significant delay factors associated with project behavior factor are poor implementation schedule on land development activities (RII = 0.5376), and poor project planning and scheduling

(RII = 0.4928).

Conversely, in line with the sub-factors of project behavior delay categories, the least contributing factor among project behavior factors related to delay factors is the delay in using agriculture-based engineering works and ideas on various items (RII = 0.3136). This means that delays in agriculture project implementation are caused by a low level of contribution.

**4.3.2. Analysis of Delay Factors Related to Project Owners (PO)**

The most chosen delay factor connected to the project owner in terms of the degree of contribution to project delay is shortage of equity contribution (RII = 0.7136), as Table 13 illustrates. In addition, among these sub-factors of the project owners' category, Miss use of the disbursed cash (using for another purpose) (RII = 0.7088) ranks second, while the factor pertaining to the conditions for effectiveness of the loan are not fulfill in time (RII = 0.6672) ranks third.

All other factors in this category have a high level of contribution to agricultural project implementation delays, even though land overlapping issues during collateralizing the project and the promoter's low capacity to cover unseen costs while planning the project have a medium level of contribution; no respondents ranked the project owner delay factor at a low level (Table 13).

**Table 13. Analysis of Delay Factors Related to Project Owners (PO)**

ID	Delay Factors	RII	RII RANK	Level of Contribution
PO	Land overlapping issues during collateralizing the agricultural project.	0.5536	6	Medium
	Shortage of equity contribution	0.7136	1	High
	Miss utilization of the disbursed fund (Using for another purpose)	0.7088	2	High
	Low capacity of the promoter to cover unseen costs while planning the project	0.5744	5	Medium
	Conditions for effectiveness of the loan are not fulfill in time	0.6672	3	High
	Slowness in decision making process by the owner managers	0.6480	4	High

Sources: Survey result; 2022

**4.3.3. Analysis of Delay Factors Related to Bank (BR)**

Tendency of the executing agencies to adhere to the terminal dates of opening L/Cs (RII = 0.7056) is the delay factor connected to the bank that ranks highest in terms of its level of contribution to project delay, as Table 14 demonstrated. Furthermore, in this sub-factor of the project owner's category, the bank's terms and conditions prior to and following loan approval (RII = 0.6752) are ranked second, while the factor containing inaccurate cost and outcome estimates to facilitate project financing decisions (RII = 0.6736) is ranked third.

Generally, regardless of the other sub-factors 'Exception and deviation of the bank's president about agricultural project implementation' and 'providing low technical advice (guidance and support of the client)' have 8<sup>th</sup> and 9<sup>th</sup> rank respectively; and had a medium level of contribution concerning bank related category of delay factors.

However; every single sub-factor included in this category contributed significantly to the delays in the execution of agricultural projects; regarding the Bank related delay factor, none of the respondents gave it a low-level ranking (Table 14).

**Table 14. Analysis of Delay Factors Related to Bank Related (BR)**

ID	Delay Factors	RII	RII RANK	Level of Contribution
BR	Exception and deviation of the bank's president about agricultural project implementation	0.5536	8	Medium
	Providing low technical advice (guidance and support of the client)	0.5520	9	Medium
	Inadequate release of funds	0.6352	5	High
	The tendency of the executing agencies to go by the terminal dates of opening L /Cs	0.7056	1	High
	Delay in obtaining the required machinery and raw materials from concerned suppliers	0.6304	6	High
	Delay in project collateralizing activities in the concerned governmental office	0.6096	7	High
	Delay in social rebels around the project area	0.6400	4	High
	Terms and conditions of the bank before and after the loan Approved	0.6752	2	High
	Inaccurate estimates of costs and expected results to enable decisions to be taken on project financing.	0.6736	3	High

Sources: Survey result; 2022

**4.3.4. Analysis of Delay Factors Related to Consultants & Stakeholders (CSR)**

Based on the opinions of the respondents, Table 15 shows that the two most frequent sub-delay factors cause of delay in the consultants & stakeholders' category of delay are delay in clearances from various regulatory agencies with RII = 0.4736 and incompetent project management consultant with RII = 0.4176.

Nonetheless, the category of causes of delay pertaining to consultants and stakeholders had the least impact on the project's execution, according to the survey results. Thus, all of the factors indicated in this category had a modest degree of contribution to the reasons for the project implementation delays, with the exception of an incompetent project management consultant and a delay in receiving approvals from different regulatory bodies (Table 15).

**Table 15. Analysis of Delay Factors Related to Consultants & Stakeholders (CSR)**

ID	Delay Factors	RII	RII RANK	Level of Contribution
CSR	Poor on time accomplishment of feasibility study	0.3584	5	low
	Submitting non-viable study result	0.3632	4	Low
	Attention on wrong way	0.3824	3	Low
	Inadequate supervision of consultant	0.3104	8	Low
	Incompetent landing Consultant	0.328	6	Low
	Incompetent project management Consultant	0.4176	2	Medium
	Delay in providing services for utilities such as water, electricity, etc.	0.2704	9	Low
	Frequent interruption of infrastructure which leads to delay in implementation of machineries	0.3216	7	Low
Delay in clearances from various regulatory agencies	0.4736	1	Medium	

Sources: Survey result; 2022

**4.3.5. Analysis of Delay Factors Related to Macroeconomic Factors (ME)**

The survey analysis results for agricultural project implementation delay factors associated with macroeconomic conditions are shown in Table 16. According to the respondents, the inflation rate (RII = 0.7824) is the most preferred explanation when it comes to the degree of contribution to project implementation delay, as Table 16 illustrates. In addition, the exchange rate fluctuation (RII = 0.6736) is rated second in this category, while the serious budget deficit arising from pricing fluctuations (RII = 0.6208) is ranked third. The respondents placed interest rates (RII = 0.6000) as the fourth important reason of delay under the macroeconomic variables linked category, despite the fact that they all contribute significantly to agricultural project implementation delays.

**Table 16. Analysis of Delay Factors Related to Macroeconomics (ME)**

ID	Delay Factors	RII	RII RANK	Level of Contribution
ME	Labor force supply	0.568	5	High
	Macroeconomics Policy	0.5088	6	High
	Inflation rate	0.7824	1	High
	Serious budget deficit resulted from fluctuation and price	0.6208	3	High
	Fluctuation of exchange rate	0.6736	2	High
	Interest Rate	0.6000	4	High

Source: Survey result; 2022

**4.4. Multiple Linear Regressions**

Further research utilizing sophisticated statistical techniques like multiple linear regressions is necessary since descriptive analysis alone is insufficient to estimate the influence of different delay causes on project implementation completion. In social science research, multiple regression analysis is a popular technique for examining the relationship between one dependent variable, or target, and more than two independent variables, or predictors. The present investigation employs standard multiple regressions in SPSS to examine the correlation between the dependent variable, the delay in agricultural project implementation, and the independent variables, bank related delays, consultant & stakeholder related delays, and macroeconomic policy related delays.

Table 17 presents the outcomes of the multiple regression analysis.

**Table 17. Regression Analysis of Factor of Causes of Delay**

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.800 <sup>a</sup>	0.639	0.624	0.28716		
a. Predictors: (Constant), ME, CS, PB, PO, PB						
ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.387	5	3.477	42.172	.000 <sup>b</sup>
	Residual	9.813	119	0.082		
	Total	27.200	124			
a. Dependent Variable: AID						
b. Predictors: (Constant), ME, CS, PB, PO, PB						
Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
APID	(Constant)	3.296	.152		21.633	.000
	PB	-.037	.038	-.055	-.972	.333
	PO	-.154	.034	-.371	-4.505	.000
	BR	-.111	.040	-.230	-2.753	.007
	CSR	-.039	.017	-.133	-2.298	.023
	ME	-.172	.039	-.291	-4.437	.000
a. Dependent Variable: AID						

Source: SPSS output, survey result; 2022

According to Table 17 above, the results of the regression analysis indicate that delay factors related to the project owner, the macroeconomic environment, and banks have a significant influence on the project's timely implementation. The  $\beta$  coefficient for these factors is (-0.154), (0.172), and (-0.111), respectively, and they are highly significant at the 1% level of significance. Furthermore, the factors connected to consultants and stakeholders had a substantial influence on the timely implementation of the project, with a  $\beta$  coefficient of (-0.039). At a 5% level of significance, there was a strong association between these factors and the delay in agricultural projects implementation.

A negative coefficient suggests that, as the independent variable increases, the dependent variable tends to decrease. The coefficient value signifies how much the mean of the dependent variable changes given a one-unit shift in the independent variable while holding other variables in the

model constant. Thus, with coefficients of project behaviour; when the project behaviour factor is increased by one, then agricultural project implementation delay was decreased by 3.7%. Also, with the project owner delay factor, if project owners increase their potential to decrease the factors that drive them to delay then agricultural project implementation delay will decrease by 15.4%.

Table 18. Correlations Analysis

		Correlations					
		APID	PB	PO	BR	CS	ME
APID	Pearson Correlation	1	-.186*	-.696**	-.674**	-.274**	-.616**
	Sig. (2-tailed)		.038	.000	.000	.002	.000
	N	125	125	125	125	125	125
PB	Pearson Correlation	-.186*	1	.093	.094	.173	.179*
	Sig. (2-tailed)	.038		.303	.297	.054	.046
	N	125	125	125	125	125	125
PO	Pearson Correlation	-.696**	.093	1	.719**	.085	.492**
	Sig. (2-tailed)	.000	.303		.000	.344	.000
	N	125	125	125	125	125	125
BR	Pearson Correlation	-.674**	.094	.719**	1	.235**	.486**
	Sig. (2-tailed)	.000	.297	.000		.008	.000
	N	125	125	125	125	125	125
CSR	Pearson Correlation	-.274**	.173	.085	.235**	1	.157
	Sig. (2-tailed)	.002	.054	.344	.008		.080
	N	125	125	125	125	125	125
ME	Pearson Correlation	-.616**	.179*	.492**	.486**	.157	1
	Sig. (2-tailed)	.000	.046	.000	.000	.080	
	N	125	125	125	125	125	125
*. Correlation is significant at the 0.05 level (2-tailed).							
**. Correlation is significant at the 0.01 level (2-tailed).							

Source: SPSS output, survey result; 2022

#### 4.4.1. Testing Validity & Relevancy of the Regression Model

The relevancy of the research model equation can be determined by computing tests such as the F-test, t-test, and coefficient of determination.

##### 4.4.1.1. F-test and coefficients

The F-test is used to determine whether any one of the predictor variables is related to the explanatory variable in the model equation. Thus, from the above Table 17, based on three independent variables it is evident that the F significance value is less than 0.05 thus; at least one independent variable is linearly related to the dependent variable thereby proving the validity of the model equation.

**Project Behaviour:** This outcome was discovered to have a detrimental link with the execution of agricultural projects. Therefore, the project's execution may be impacted by its status as an agricultural project. In other words, the fact that the project was related to agriculture increased the implementation delay by 0.037. This can rely on when the project was approved rather than the time of year that agriculture is operating separately. Project conduct and the delay in implementing the agricultural project, however, did not significantly correlate. The outcome did not match expectations.

**Project Owner:** At a 1 percent significance level, the coefficient of project owner for the delay in the implementation of agricultural projects is statistically significant and negative. It indicates a negative correlation with delays in the implementation of agricultural projects. Therefore, the agricultural implementation was reduced by 15.4% for every one percent increase in the delay factor by the project owner. It suggests that the project owner is also impacted if the pressure from delay causes was significant during project execution.

This indicates that it hinders the execution of the project. This outcome matches what was anticipated. Furthermore, with respect to the assessment of the most important delay causes, our results concur with those of previous studies conducted in other nations [35] and [14].

**The Bank:** a negative coefficient for bank-related issues; the implementation of agriculture was reduced by 11.1% for every percent increase in delay brought on by the bank. It suggests that project implementation happened if the bank (borrower) extended the delay in project execution. This indicates that it has a bad relationship with carrying out projects. As a result, it fit the expectation, which indicated a strong correlation with the anticipated variable. Furthermore, this outcome agreed with [13].

**Consultants & Stakeholders:** Another finding of this study is that there is a sympathetic correlation between consultants and stakeholders and the delay in agriculture implementation. Additionally, the respondents' perceptions and the regression analysis of consultants and stakeholders yielded a 3.9% result, or 0.039. Nevertheless, there was no meaningful correlation found between the predictor variable and the predicted variable. It manifests as such incongruent with expectations. This suggests that delays in agriculture implementation were not a major issue for consultants or stakeholders. But in their research on construction delays, [33] found that improper coordination between the contractor or consultant and the owner was the second factor contributing to the delays. This happens when an owner's choice is not appropriately conveyed to relevant parties, or when a contractor, stakeholder, or consultant fails to convey to the client the urgency of the decision that has to be made. This conclusion was therefore incompatible with [33] and [35].

**Macroeconomic Factor:** Another element influencing the delay in implementing agricultural practices is macroeconomic factors. At the one percent significance level, the macroeconomic study's coefficient was shown to be adversely correlated with the delay in agricultural implementation. According to the outcome, there was a 0.172 increase in the implementation delay due to macroeconomic factors. The model's outcome therefore indicates that the project implementation delay will be impacted by the emergence of macroeconomic variables and sub factors. Thus, it suggests that the execution of agricultural projects had a substantial correlation with macroeconomic variables, in line with predictions.

**Agricultural Project Implementation Delay (APID):** Table 17 above indicates that the constant or expected level of significance was at the 1% level. This suggested that there were delays in the DBE, Nekemte district, agriculture project implementation delays.

Following the processing of several regressions, the regression model that follows was created:

**Agricultural Project Implementation Delay (APID):**

$$\text{APID} = 3.296 - 0.037(\text{PB}) - 0.154(\text{PO}) - 0.111(\text{BR}) - 0.039(\text{CS}) - 0.172(\text{ME})$$

**4.4.1.2. Coefficient of Determination**

The dependent variable's variation that can be accounted for by the explanatory factors is expressed as a R square value. Table 17 displays the computed R<sup>2</sup> value of 0.639 for the regression findings. This means that 63.9% of the variance in the dependent variable can be explained by changes in the independent variables, while 37.1% remains unexplained. An adaptation of "R square" that takes into account the impact of a model's number of independent variables is called "adjusted R square." Based on the R-squared value, we may infer that the estimated model has a decent capacity for prediction.

**4.4.1.3. T-Test**

The 'T' test establishes the significance of each regression coefficient. Table 17 support the finding that a higher percentage of regression coefficient significance values are less than 0.05. Therefore, there is enough information to conclude that the project owner, bank-related factors, and macroeconomic factors are the independent variables that link to the dependent variable. Nevertheless, the dependent variable does not significantly change in response to factors related to consultants, stakeholders, or project behaviour. This is predicated on the study participants not giving those two independent factors that don't have a bigger effect on the dependent variable a higher priority. Another reason might be that the respondents are evaluating the other variable and believe it to have little bearing.

**5. Recommendations and Conclusions****5.1. Recommendations**

The following recommendations are suggested to minimize and restrict delays in implementation of agricultural projects funded by the Development Bank of Ethiopia Nekemte District in light of the research findings and conclusions.

**For Macroeconomic Related:** This research demonstrates how the project may be impacted by factors such as inflation, currency rates, significant budget deficits brought on by price fluctuations, and interest rates, which can also have an impact on labor force availability and pricing for the chosen agricultural inputs and supplies. Thus, it is recommended that the government work to ensure that the exchange rate is as close to the Birr as possible. Maintaining stability is also important since fluctuations in the Ethiopian birr might impact business opportunities by causing fluctuations in material pricing. The goal in Ethiopia should be to keep the country's inflation rate steady. Policy-wise, the financial institution should lower the interest rate it charges on loans obtained from banks or lending organizations since excessive interest rates make capital project development investments risky.

One of the macroeconomic delay factors that has the most influence on the implementation of agricultural projects is inflation. In order to reduce inflation while buying the machinery, carefully estimate quantities while preparing the offer. Moreover, project owners should use the expected price at the beginning of the project, not the predicted input price while the offer is being produced. Informing potential clients that projects based on more precise bids are less likely to go over budget and schedule is crucial.

**For Project Owners Related:** The most significant issues under this category, ranging from 1 to 3, are absence of equity contribution, improper use of the disbursed funds (using for another purpose), and failure to meet the loan's effectiveness requirements on time. To prevent these kinds of delays, one suggested tactic is to support a project's future while taking equity crowd funding in to consideration as a way to raise fund for one's own company. Raising money for a project or business through equity crowd funding involves many people contributing to the fundraising effort.

In order to safeguard against owners abusing the released money, the Bank will keep an eye on the project's whole operation and will identify any deviation from the plan (without the Bank's agreement) in order to prevent owners from misusing the funds that have been disbursed. If customers transfer cash for involuntary objectives, the project will be subject to urgent action, which may include preventing further payments and/or loan termination.

- Project owners must complete the prerequisites in order to receive and apply for loans on time. They are also responsible for determining how best to use the loan's given funds in a timely manner.
- Throughout a project, planning and scheduling are among the most crucial elements. To prevent budget and schedule overruns, they should be regularly reviewed and revised. In order to complete the project implementation on time, project owners must thus pay close attention to the optimal plan and timetable.
- On-site agricultural initiatives ought to be overseen so that everything proceeds as usual. To guarantee that the project runs well, manpower, machinery, and equipment should be distributed according to the criticality of the various tasks.

**Bank Related:** A nation's financial sector is essential to its growth and development. Banks are one type of financial institution that performs an intermediation role by obtaining money from individuals who have surplus finances and lending it to those who require it for investments. Therefore, one way that banks support economic growth is by extending credit to borrowers. This helps to guarantee that the money in the economy is used for worthwhile projects that have the potential to boost the economy. Therefore, effective credit management benefits not only the Bank's performance but also the economies of the borrower companies and the entire nation. Hence:

- The implementing companies' propensity to follow the L/C opening dates should be addressed by the bank.
- Streamlining the investors' readiness to centrally resolve the bank's terms and conditions both before

and after the loan is accepted.

- To make project financing choices easier, bank employees must calculate expenses and anticipated outcomes with accuracy.

The financial stability and security of the bank depends critically on the efficient administration of the credit function because the loan portfolio is the greatest asset and the main source of income [36].

**Consultants & Stakeholders related delay factors:** Project stakeholders are people and organizations that actively participate in the project or whose interests might be impacted by the project's execution or successful conclusion. Additionally, by providing infrastructure and facilities to the project owners, government entities were essential to the project's execution.

The following sub-variables are evaluated from 1 to 3 in terms of their contribution to the delay in the execution of an agricultural project: incompetent project management consultant, attention on the wrong path, and delays in receiving approvals from various regulatory bodies.

As a result, the government must focus on setting up the pre-facilities and reducing the amount of time it takes to provide services for utilities like power and water.

To provide good project management, project owners must be located. It was also found that project managers require a combination of skill, knowledge, comprehension, and attitude. Together, these factors add up to ability, which all project managers aspire to when used regularly, consistently, and to a standard. The first pillar includes broad management competencies that are essential for any management role, including team building, communication, negotiation, leadership, and human resource management. For this reason, each management role requires project management skills in addition to leadership, negotiating, communication, team building, and other human resource management abilities. Subsequently, the project is executed on schedule and successfully. Furthermore, in order to implement on time, this study suggests that:

- There should be no flaws or inconsistencies in the drawings and design documentation, and they should be supplied and authorized on time.
- A claim's substantiation must be carefully examined and studied when determining its legitimacy since disputes over the claim frequently result in expensive and time-consuming arbitration and litigation.
- Consultants must be helpful and adaptable while assessing the performance of contractors.
- All stakeholders must look for qualified landing consultants prior to the project's implementation.

**Project Behaviour factor:** Project variations may occur based on its complexity and behaviour. As a result, a project's complexity, character, and behaviour may all contribute to its execution being delayed. Consequently, a simpler project is better.

Owing to the nature of the project, the site may be located distant from the project owner's home. As a result, an agricultural project could occasionally be located distant from the owner's home. The high farm size identified may be the cause of it. Their projects were being delayed or not completed on schedule as a result of

this. Thus, in order to reduce the project's implementation, delay as much as possible, investors should select projects that they can do in and around their homes. Additionally, it aids in their monitoring.

There is an infinite and broad range of project behaviors that might be pertinent to managing a complicated project. Because of this, it is not feasible for the practitioner to have access to the entire area at any given moment.

## 5.2. Conclusions

In many projects sector, delays have a significant influence on project costs and schedules. Additionally, postponing agricultural initiatives would result in increased expenses and a reduction in the project's financial return or other advantages. As a result, the owner and the bank bear financial costs from the delay. The research aimed to determine the relative relevance of the reasons causing delays in projects supported by the Development Bank of Ethiopia by surveying bank staff and clients. By determining the underlying causes of difficulties and developing solutions that might shorten the duration of delays in agricultural projects, the amount of delays should be decreased. 39 variables are found in this study and are divided into five (5) groups. Thus, at a 1% level of significance, three (3) of the key groups' causes of delays the bank-related variables, the project owner factors, and macroeconomic factors have significant associations with delays in agricultural projects implementation. Consequently, the predictor factors and dependent variable are concluded to have a linear and significant association with each other since the P value of those three discovered causes of delays is less than 0.05. However, two (2) of them, project behaviour and consultants & stakeholders, are not linearly associated with delays in agricultural project implementation.

Results of the study indicated that both respondents' groups mostly concurred that the top 10 variables impacting delay were ranked in descending order, out of a total of 39 factors. The survey's results showed that the three most frequent reasons for delays are inflation, the project owner's insufficient equity participation, and improper use of the granted funds (using them for personal gain). Generally, from the three significant relationships with agricultural projects implementation delays in DBE Nekemte District, the top ten (10) sub-factors of delays are as follows:

- Inflation rate
- Shortage of equity contribution
- Miss utilization of the disbursed fund (Using for another purpose)
- The tendency of the executing agencies to go by the terminal dates of opening L/Cs
- Terms and conditions of the bank before and after the loan Approved
- Fluctuation of exchange rate
- Inaccurate estimates of costs and expected results to enable decisions to be taken on project financing
- Conditions for the effectiveness of the loan are not fulfilled in time

- Slowness in the decision-making process by the owner-managers
- Delay in social rebels around the project area

The co-author Dr. Gemechu Mulatu was worked in this manuscript by advising and supervising me during the thesis work.

## List of Abbreviations and Acronyms

APID: Agricultural Project Implementation Delay  
 BR: Bank Related  
 CSA: Central Statistical Agency of Ethiopia  
 CSR: Consultant & Stakeholder Related  
 DAS: Delay And Sum  
 DBE: Development Bank of Ethiopian  
 GDP: Gross Domestic Product  
 GTP: Growth Transformation Process  
 LC: Letter of Credit  
 MR: Macroeconomic Related  
 NPLs: Non-Performing Loans  
 PB: Project Behaviour  
 PO: Project Owner  
 PRLRT: Project Rehabilitation and Loan Review Team  
 SME: Small and Medium Enterprise  
 SPSS: Statistical Package for Social Sciences  
 UNCTAD: United Nations Conference on Trade and Development

## Conflict of Interest

There are no disclosed conflicts of interest for the writers. The co-author has read the work and concurs with its contents; no financial interests need to be disclosed. We attest that the submission is our original work and isn't currently being considered by another publisher.

## Ethical Statement

I promise never to compromise on morality, and I'll approach my work with honesty and decency. I shall abide by both the text and the intent of the law. I promise to own up to my mistakes and think about how they may affect other people. Making the social and economic environment sustainable is what I'll work toward.

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## Authorship Contributions

The first author I (Mr. Alemu Olika): The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

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