



CDS Kenya

# **Smallholder Irrigation and Value Addition Project (SIVAP) Cheptais, Kenya**



## **Project Fundraising Proposal**

## Project Information Sheet

To be able to provide community water irrigation targeting 100 households based in Cheptais, the information below is intended to provide some guidance to prospective fundraisers, suppliers, contractors, and all persons interested in the project.

|                          |  |
|--------------------------|--|
| DATE:                    | December, 2020   |
| PREPARED BY:             | Chen Aijia (chenaijia0912@gmail.com)   |
| PROJECT TITLE:           | Smallholder Irrigation and Value Addition Project (SIVAP)  |
| LOCATION:                | Cheptais, Mt. Elgon, Kenya   |
| EXECUTING INSTITUTION:   | Community Development and Sustainability Organization  |
| DATE OF APPROVAL         | To be determined   |
| ESTIMATED STARTING DATE: | March, 2021  |
| PROJECT TIMELINE:        | <p>Total Time-Consuming: 146 days</p> <p>Project Initiation: 26 days</p> <p>Project Planning: 20 days</p> <p>Project Execution: 108 days</p> <p>Monitor and Control: 72 days</p> <p>Project Closure: 21 days</p>   |
| Project Budget           | <p>Total Expenditure: \$ 146,100 (KES 14,610,000)</p> <p>1<sup>st</sup> Year: \$ 76,700 (KES 7,670,000)</p> <p>2<sup>nd</sup> Year: \$ 34,700 (KES 3,470,000)</p> <p>3<sup>rd</sup> Year: \$ 34,700 (KES 3,470,000)</p> <p>Total Revenue: \$ 39,000 (KES 3,900,000)</p> <p>1<sup>st</sup> Year: \$ 8,000 (KES 800,000)</p> <p>2<sup>nd</sup> Year: \$ 13,000 (KES 1,300,000)</p> <p>3<sup>rd</sup> Year: \$ 18,000 (KES 1,800,000)</p> |

CDS Kenya reserves the right of final interpretation.

## Acronyms

|        |   |
|--------|---|
| CDS    | Community Development and Sustainability Organization         |
| ERSWEC | Economic Recovery Strategy for Wealth and Employment Creation |
| GDP    | Gross Domestic Product  |
| GMP    | Good Manufacture Practice                                     |
| KRDC   | Kenya Rural Development Strategy                              |
| MoA    | The Ministry of Agriculture                                   |
| NGO    | Non-Governmental Organization                                 |
| NIB    | National Irrigation Board                                     |
| PRSP   | Poverty Reduction Strategy Paper                              |
| SIVAP  | Smallholder Irrigation and Value Addition Project             |
| SRA    | Strategy for Revitalizing Agriculture                         |
| WBS    | Work Breakdown Structure                                      |

## Currency Equivalents

December, 2020

1 USD = 100 KES

## Executive Summary

Agriculture is a key sector in Kenya's economy and it is one of the main sectors supporting the economic pillar in Kenya's Vision 2030, with a sector annual growth projection of 5% to 6%. More than 80% of this country's population is engaged in farming and animal husbandry. In Kenya, the availability of productive land is a major limiting factor in increasing agricultural production. Only 16% of Kenya's land has medium to high agricultural potential and sufficient and reliable rainfall. The remaining 84% are classified as arid or semi-arid, unsuitable for rain-fed agriculture due to low and unstable rainfall. Climate change is also another challenge for the Cheptais farmers. Therefore, the irrigation progress will go a long way in ensuring farm crop production to the Cheptais citizens with intentions of expanding to the constituency, county, and country. This project will construct a water irrigation line that will serve 100 households in Cheptais. So that to reduce price exploitation by lowering farmers' dependencies on the rainfall.

The executing institution is CDS Kenya, which is a NGO registered and operating in Kenya implementing programs peace, health, food security, human rights protection, and promotion access to education, good governance and advocacy representing the voice and pro-active action of communities in Mt. Elgon as potential engines of the socio economic growth and national democracy in respective jurisdictions.

The objectives of this project are to develop the strategies of online fundraising campaign in global context, to construct a 10 kilometer water irrigation line that will serve 100 smallholders in Cheptais, and reduce the price exploitation by lowering farmers' dependencies on the rainfall. So that to increase the agricultural productivity of Cheptais and achieve economic empowerment of the selected householders.

The full implementation of the project will span in 2021, for approximately 146 days.

The whole project consists of five stages. Part of the work will be carried out at the same time.

The total expenditure for this project is USD 146,100 (KES 14,610,000). The expenditure for in the first year is USD 76,700 (KES 7,670,000). The cost for work, project construction, and others spend 52.02%, 33.90% and 14.08% of the first year's total expenditure respectively. And the expenditures in the second year and the third year are both USD 34,700 (KES 3,470,000). Moreover, this project will have USD 8,000 (KES 800,000) as revenue for the first year. Within more members, the revenue of the second year and the third year is expected to be USD 13,000 (KES 1,300,000) and USD 18,000 (KES 1,800,000) respectively, which means the total revenue for the first three years will be USD 39,000 (KES 3,900,000).

By the end of the project, there will be 4 outputs to be expected: I) Establish global online fundraising channels and strategies. II) Construct 10 kilometer water irrigation line supporting 100 smallholders in Cheptais. III) Gravity force irrigation systems are improved. IV) Management of small-scale irrigation scheme is improved. V) Irrigated farming technology in Cheptais is improved.



## Table of Contents

|  |    |
|--|----|
| Project Information Sheet .....                              | 2  |
| Acronyms.....  | 3  |
| Currency Equivalents.....                                    | 3  |
| Executive Summary .....                                      | 4  |
| 1. Introduction .....  | 7  |
| 1.1. Origin of the Project.....                              | 7  |
| 1.2. The Agriculture Sector.....                             | 8  |
| 1.3. SWOT Analysis for Irrigation Development in Kenya ..... | 10 |
| 1.3.1. Strengths: .....                                      | 11 |
| 1.3.2. Weakness: .....                                       | 12 |
| 1.3.3. Opportunities: .....                                  | 12 |
| 1.3.4. Threats: .....  | 12 |
| 2. Executing Institution Background .....                    | 13 |
| 2.1. Description of the Institution .....                    | 13 |
| 2.2. Mission of the Institution .....                        | 13 |
| 2.3. Vision of the Institution .....                         | 13 |
| 2.4. Goal of the Institution .....                           | 14 |
| 3. Problem Statement.....                                    | 14 |
| 4. The Project.....  | 15 |
| 4.1. Scope of Work .....                                     | 15 |
| 4.2. Project Objectives .....                                | 15 |
| 4.3. Project Output: .....                                   | 15 |
| 5. Project Implementation.....                               | 16 |
| 6. Project Evaluation.....                                   | 19 |
| 7. Project Budget .....                                      | 20 |
| 8. Donation Channel .....                                    | 23 |
| 9. Other Components.....                                     | 23 |
| 9.1. Project Sustainability .....                            | 23 |
| 9.2. Sample Pictures.....                                    | 24 |
| References.....  | 25 |



## **1. Introduction**

### **1.1. Origin of the Project**

Kenya ranks among the poorest countries in the world and has one of the most skewed distributions of income amongst low-income economies. About 56% of the Kenya people live below the poverty line, most of who (80%) live in rural areas. By 2020, the population of Kenya has reached 50.9 million, with an annual growth rate of about 2.52 %. Annual GDP growth rates in Kenya in the last five years have been less than 1.8%, which is below the population growth rate. As a result, poverty has become more prevalent, exacerbated by some years of drought. The impact is greatest in rural areas, where over 75% of the population is dependent on agriculture for livelihood.

Agriculture is a key sector in Kenya's economy and it is one of the main sectors supporting the economic pillar in Kenya's Vision 2030, with a sector annual growth projection of 5%to 6%. More than 80% of this country's population is engaged in farming and animal husbandry. There are 92,000 square kilometers of arable land (about 16% of the country's total land area), of which 73% is cultivated, mainly in the southwest. By far, Kenya is the biggest cut flowers exporter in Africa, with a market share of 31% to 36% in the European Union. The main grain crops are corn, wheat, rice, sorghum, and cassava. The main cash crops are coffee, tea, cotton and cut flowers.

In Kenya, the rainy season occurs from March to June and October to December, with the rest of the year being dry seasons. The annual rainfall decreases from 1500 mm to 200 mm from southwest to northeast. About 20 of the 47 counties in Kenya are on drought alert. (Luchelle, 2019) The availability of productive land is a major limiting factor in increasing agricultural production. Only 16% of Kenya's land has medium to

high agricultural potential and sufficient and reliable rainfall. The remaining 84% are classified as arid or semi-arid, unsuitable for rain-fed agriculture due to low and unstable rainfall.

Being within a predominantly agricultural region, farmers in Cheptais are affected by reduced production as there are not enough systems to cushion farmers from the adverse effects of rainfall shortage. Also, Kenya, as a whole, is known to have heavily varying soil types that vary rapidly between regions. This situation has prevented the evolution of the Green revolution in the country, and Cheptais has been a casualty. Climate change is also another challenge for the Cheptais farmers, and Kenya has seen the adverse effects of this. The preexisting rainy seasons are shifting, making the situation even worse for the already suffering farmers necessitating innovative ways to substitute the rain. Therefore, the irrigation progress will go a long way in ensuring farm crop production to the Cheptais citizens with intentions of expanding to the constituency, county, and country.

This project will build on previous experiences in agriculture and rural development and existing investments in irrigation development in Kenya. Furthermore, this project will provide community water irrigation targeting 100 smallholders based within Cheptais sub location as pilot project.

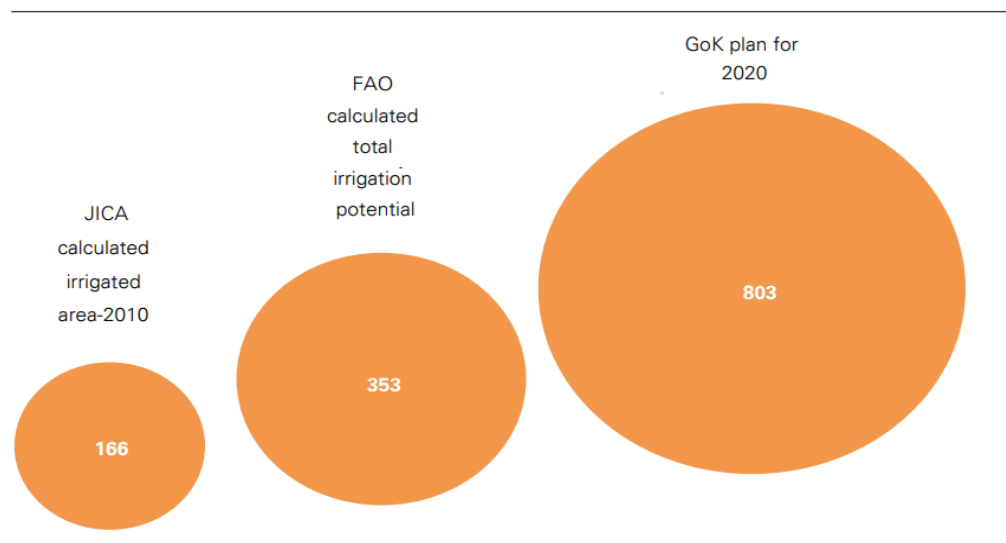
## **1.2. The Agriculture Sector**

The Kenyan economy is based on agriculture. All agro-ecological zones of the tropics can be found in Kenya. This diversity is compounded by a variety of land tenure arrangements, comprising large estates, smallholder farms (both mostly in high potential areas), and communal farming in the low potential rangelands. There are an estimated 3 million agricultural holdings in Kenya. They are mostly small family farms with areas between 0.2 to 12 hectares, which contribute about 70% to the



marketed agricultural production. Estates dominate in tea, coffee, sisal, sugar cane and other export crops while the smallholder sector is more oriented towards food crops, vegetables and dairy production. Land scarcity is a common feature of smallholder production systems particularly in the high potential areas, whereas large tracts of land are still occupied by estates.

**Figure 1:** Estimated irrigable land Kenya (‘000 ha)



Source: FAO Aquastat, JICA, GoK

Women play an important role in agricultural production in Kenya. They contribute up to 80% of all labor in food production and 50% in cash crop production while receiving only 7% of agricultural extension information. In addition to the labor contribution, women are increasingly becoming farm managers and heads of farm households. It is estimated that over 40% of all smallholder farms are managed by women. This is in addition to other activities such as collection of fuel- wood, poles for construction, fetching water for domestic use, cooking and feeding of the family.

The last decade has been characterized by significant developments in the agricultural sector. The Ministry of Agriculture (MoA) has not been able to maintain service provision, particularly with regard to extension and research due to limited resources.

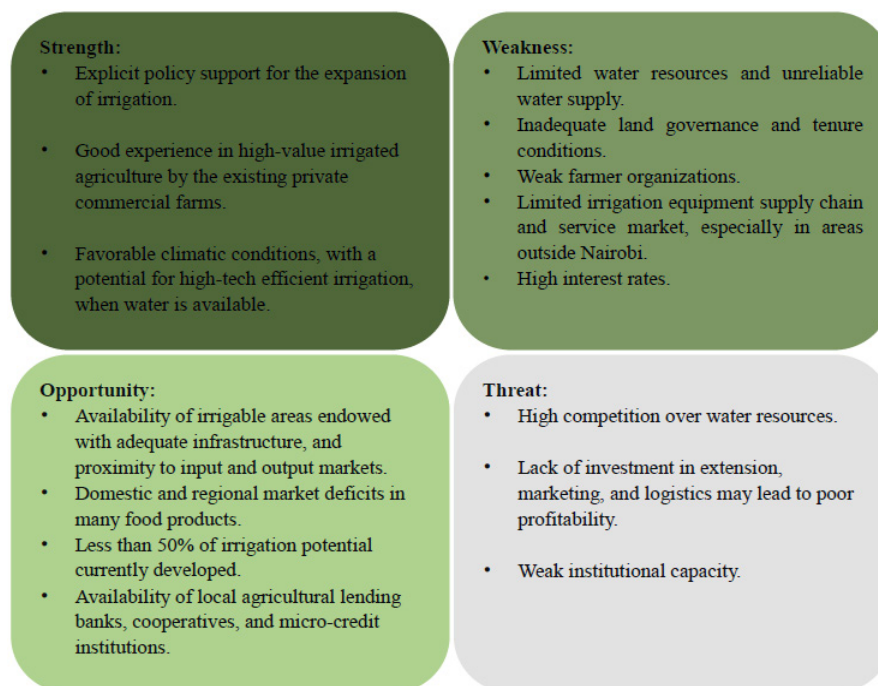
NGOs and special donor funded projects have moved in to fill the gap through the provision of extension services and other rural development activities in many rural areas.

Both large and small scale farmers' agricultural activity is strongly oriented to high-value and marketable crops, and therefore depends largely on irrigation. However, the cost of high-tech irrigation systems, increased by the costs of developing water resources, could be prohibitive and limit the adoption rate of such irrigation systems. Unreliable water supplies in most parts of the country could pose a challenge to production.

### **1.3. SWOT Analysis for Irrigation Development in Kenya**

Kenya's agribusiness is a vibrant sector and a key driver of agricultural sector growth. Continuous innovation and new investments have contributed to this growth. The irrigation development in Kenya will help and improve traditional agriculture, which relies too much on rainfall.

**Figure 2: SWOT Analysis for Irrigation Development in Kenya**



Source: Authors' compilation, 2014.

### 1.3.1. Strengths:

The government in Kenya has explicit policy support for the irrigation development, as well as strategies to implement sound land use, water and natural resource management policies including developing irrigation. It is also to build an effective and efficient participatory extension and technology delivery service and to undertake affirmative action to ensure the participation of women in agriculture. Moreover, there are good experiences in high-value irrigated agriculture by the existing private commercial farms. The government also intends to establish an efficient rural finance and credit supply system for smallholders and rural primary agro-processors and to ensure an investor-friendly institutional and legal framework to facilitate long-term investments in farm improvements. Four documents have been elaborated to provide a road map for the future development of the country and the agricultural sector. They are: The Economic Recovery Strategy for Wealth and Employment Creation (ERWEC), The Poverty Reduction Strategy Paper (PRSP), The Kenya Rural

Development Strategy (KRDS), and The Strategy for Revitalizing Agriculture (SRA). However, Irrigation in Kenya lacks a clear cut policy. The Irrigation Act (cap 347) concentrates only on the National Irrigation Board (NIB) and the associated national irrigation schemes without covering other types of irrigation schemes. Also, the climatic conditions could be strength for irrigation development, with a potential for high-tech efficient irrigation, when water is available.

#### 1.3.2. Weakness:

Irrigation development is faced with several weaknesses. These include: I) Limited water resources and unreliable water supply. II) Inadequate land governance and tenure conditions. III) Weak farmer organizations. IV) Limited irrigation equipment supply chain and service market, especially in areas outside Nairobi. V) High interest rates due to the limited effective competition in the banking industry.

#### 1.3.3. Opportunities:

Irrigation development also has several opportunities. These include: I) Availability of irrigable areas endowed with adequate infrastructure and proximity to input and output markets. II) Domestic and regional market deficits in many food products. III) Less than 50% of irrigation potential currently developed. IV) Availability of local agricultural lending banks, cooperatives, and micro-credit institutions.

#### 1.3.4. Threats:

The threats for irrigation development in Kenya include: I) High competition over the water resources. II) Lack of investment in extension, marketing, and logistics may translate into bottlenecks for crop outflow and poor profitability, particularly for fruit and vegetables. III) The institutional capacity is currently relatively weak.

## **2. Executing Institution Background**

### **2.1. Description of the Institution**

CDS Kenya (Community Development and Sustainability Organization) Community is a NGO registered and operating in Kenya implementing programs peace, health, food security, human rights protection, and promotion access to education, good governance and advocacy representing the voice and pro-active action of communities in Mt. Elgon as potential engines of the socio economic growth and national democracy in respective jurisdictions. CDS Kenya was formed in June 2009 as a NGO in Mt. Elgon, out of the need to replicate community development. The NGO is a membership organization with members across the region and focuses on tackling the community challenges people face on day to day basis, in a structurally unified voice.

### **2.2. Mission of the Institution**

The mission of CDS Kenya is to facilitate development based on self-reliance and self-sufficiency through effective implementation, promotion and support of integrated community development with the full participation, ownership and promotion of communities.

### **2.3. Vision of the Institution**

CDS Kenya empowers communities to advance knowledge and enable access basic needs which promote a sustainable livelihood through self-reliance and full

community participation.

## 2.4. Goal of the Institution

CDS Kenya focuses on tackling the community challenges people face on day-to-day basis, by providing structure and unity.

## 3. Problem Statement

On average, western Kenya receives rainfall ranging from 1,740 mm to 1,940 mm (Alternative, n.d.). This is way beyond what other regions receive in rainfall. However, Cheptais lacks mechanisms for modern irrigation. This is a nationwide concern because of underinvestment in production areas, with only 19% of potential irrigated areas being utilized.

| <b>Basin</b> | <b>Potential (ha)</b> | <b>Development (ha)</b> |
|--------------|-----------------------|-------------------------|
| Tana         | 205000                | 68700                   |
| Athi         | 40000                 | 11000                   |
| Lake basin   | 200000                | 10700                   |
| Kerio valley | 64000                 | 5400                    |
| Ewaso nyiro  | 30000                 | 10000                   |
| Total        | 539000                | 105800                  |

Kenya is already experiencing a food shortage. Its food basket is not producing enough to cater to the whole country. Cheptais lies in the greater western Kenya and is part of those areas required to feed the nation. However, Cheptais does not receive

rainfall throughout the year to sustain continued production. Farmers rely on the rain, and patterns of rainfall are now shifting due to global warming. Therefore the development of irrigation systems to cope with erratic rainfall is necessary.

## **4. The Project**

### **4.1. Scope of Work**

This fundraising event is open to help 100 households in Cheptais, Mt. Elgon, Kenya, by constructing water irrigation line.

### **4.2. Project Objectives**

Main Objectives:

To increase the agricultural productivity of Cheptais and achieve economic empowerment of the selected householders.

Specific Objectives:

To construct a water irrigation line that will serve 100 small-scale farmers in Cheptais.

To reduce the price exploitation by lowering the dependencies on the rainfall.

### **4.3. Project Output:**

- a) Establish global online fundraising channels and strategies.
- b) Construct 10km water irrigation line supporting 100 household in Cheptais.  
Water pipes including PPR, Galvanized, normal pipes, and trenches will be done for the same water line.





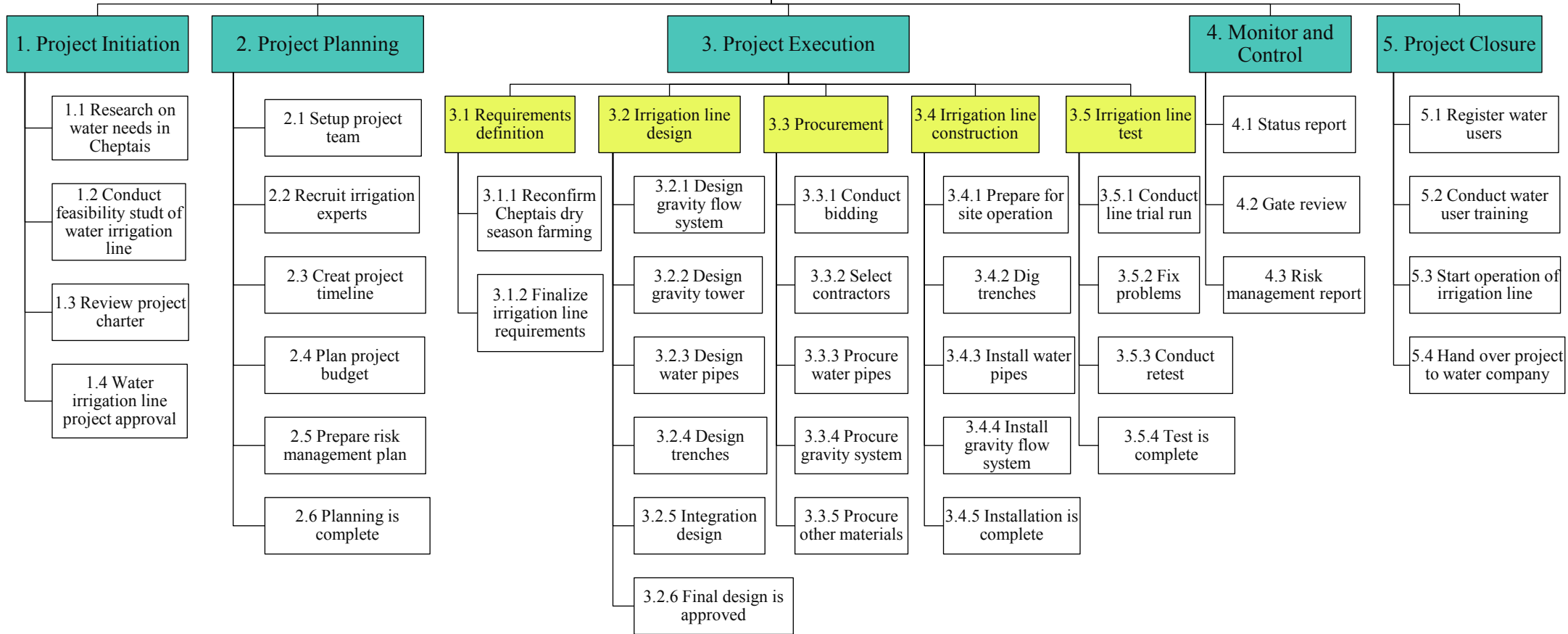
- c) Gravity force irrigation systems are improved.
- d) Management of small-scale irrigation scheme is improved.
- e) Irrigated farming technology in Cheptais is improved.

## **5. Project Implementation**

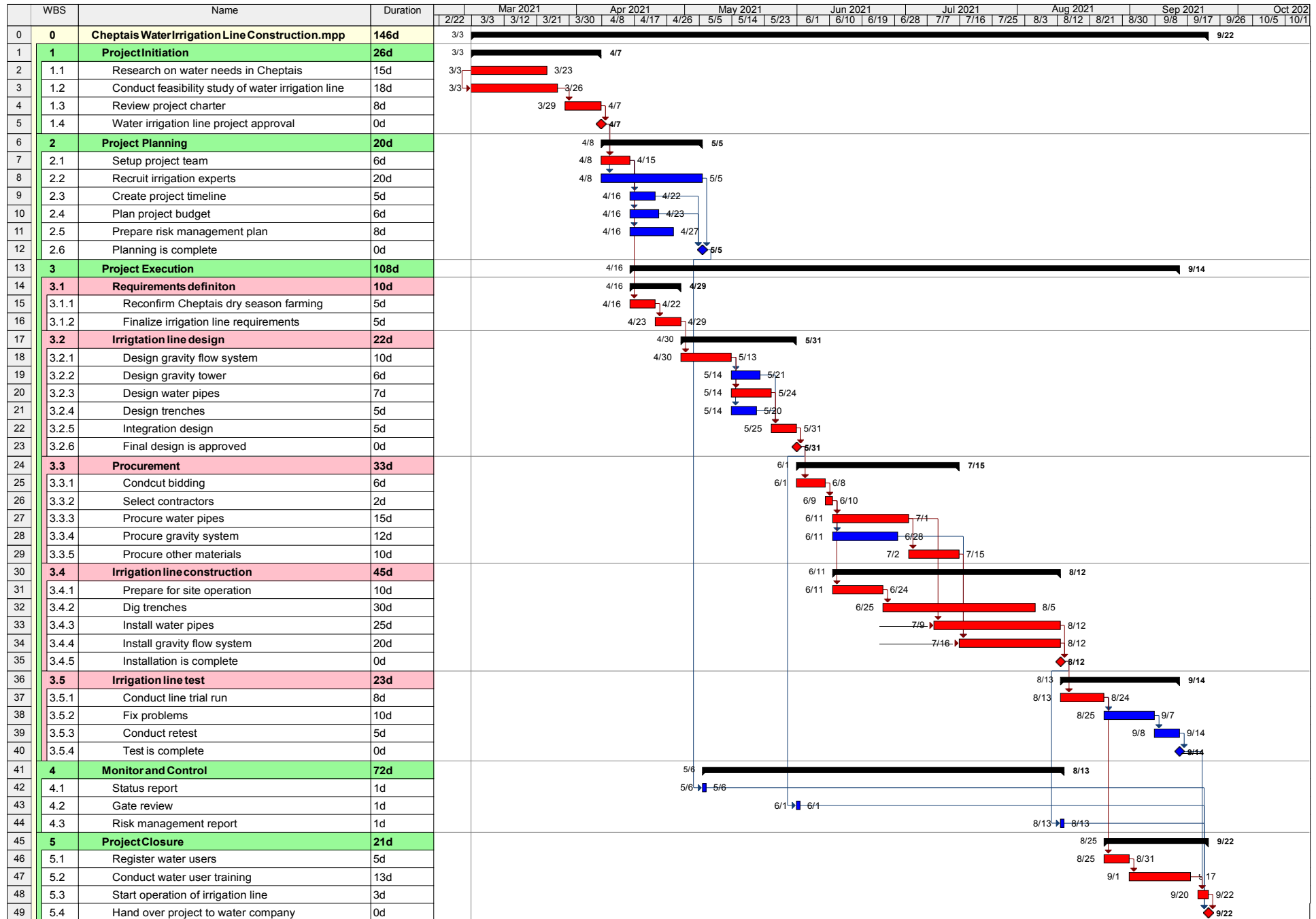
The full implementation of the project will span in 2021. The whole project consists of 5 stages: project initiation, project planning, project execution, monitor and control, and project closure. Part of the work will be carried out at the same time.

A detailed Work Breakdown Structure (WBS) and Gantt chart is provided below to illustrate the stages and work breakdown of the proposed implementation strategy for the project.

# Smallholder Irrigation and Value Addition Project (SIVAP)



# Smallholder Irrigation and Value Addition Project





## 6. Project Evaluation

Achievements by intended output:

- a) Construct 10km water irrigation line supporting 100 household in Cheptais.  
Water pipes including PPR, Galvanized, normal pipes, and trenches will be done for the same water line.

To satisfactorily achieve this output by the end of project period, the construction of the target area need to be completed and the management of the irrigation system will be handed over to the ultimate users. In Cheptais area, the construction of the irrigation system, covering 10km, will be conducted to benefit 100 households.

- b) Gravity force irrigation systems are improved.

To satisfactorily achieve this output by the end of project period, the construction of the gravity force irrigation systems need to be completed and the management of the system will be handed over to the ultimate users.

- c) Management of small-scale irrigation scheme is improved.

In order to achieve this output before the end of the project, at least 2 tests must be conducted on the irrigation system and line trials. Modify the problems that may arise and produce corresponding reports to facilitate future irrigation system construction projects.

- d) Irrigated farming technology in Cheptais is improved.

In order to achieve this output, the training to farmers in this area will be conducted. They will be taught on how to use the irrigation system to effectively help their farming. Irrigation systems will continue working to improve agricultural productivity in this area and reduce farmers' dependency on rainfall.

## 7. Project Budget

The total expenditure for this project is USD 146,100 (KES 14,610,000). The expenditure for in the first year is USD 76,700 (KES 7,670,000). The cost for work, project construction, and others spend 52.02%, 33.90% and 14.08% of the first year's total expenditure respectively. And the expenditures in the second year and the third year are both USD 34,700 (KES 3,470,000). Moreover, this project will have USD 8,000 (KES 800,000) as revenue for the first year. Within more members, the revenue of the second year and the third year is expected to be USD 13,000 (KES 1,300,000) and USD 18,000 (KES 1,800,000) respectively, which means the total revenue for the first three years will be USD 39,000 (KES 3,900,000). In addition, staff payment may fluctuate depending on local employment conditions. The cost of materials will subject to the final supplier agreement. The suppliers, product place, and supply chain will cause the material expense to differ greatly.

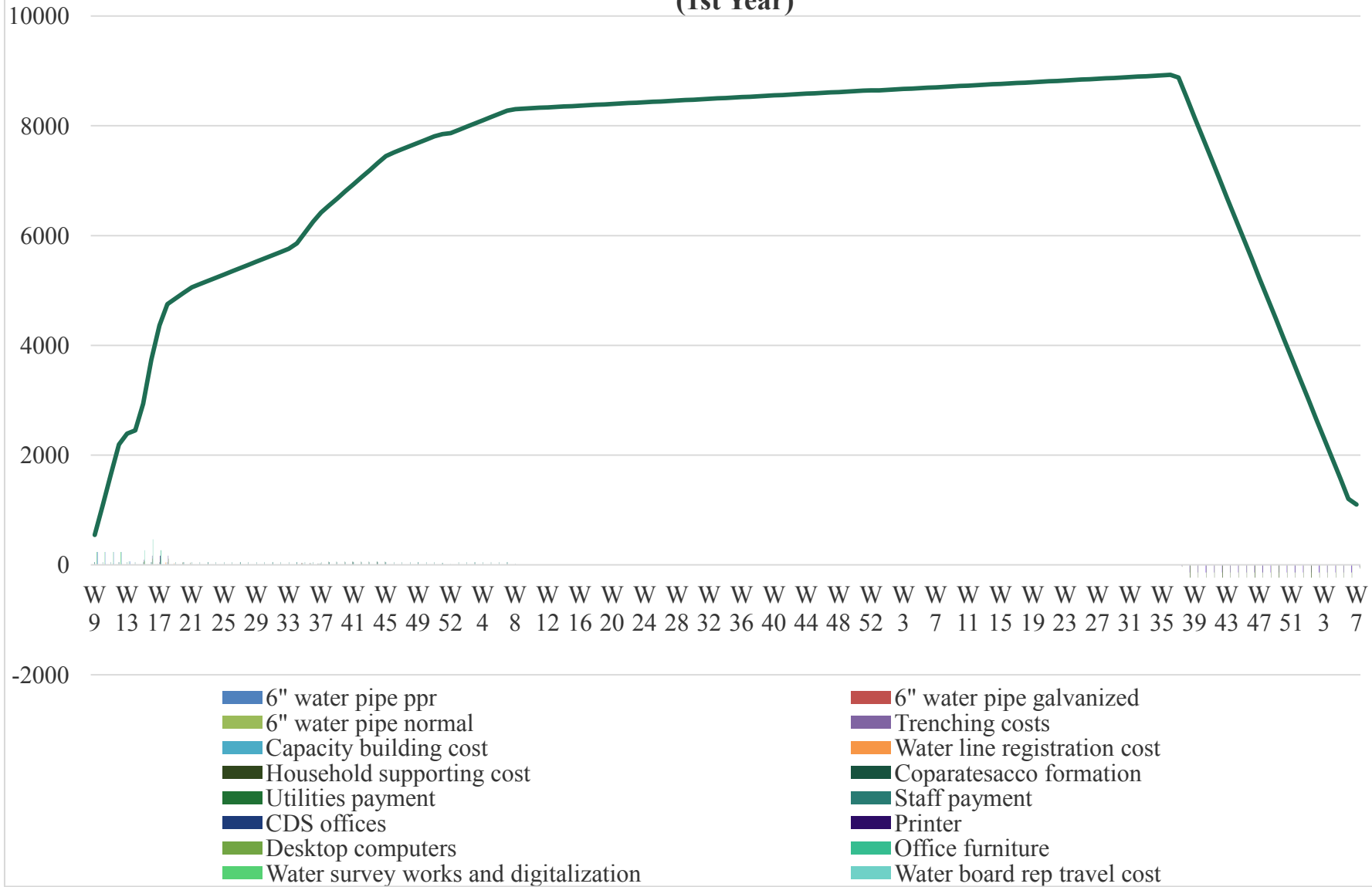
The project budget for revenues and expenditures are as follows:

| Project Budget for Revenues |                                    |                       |              |                        |              |                        |              |
|-----------------------------|------------------------------------|-----------------------|--------------|------------------------|--------------|------------------------|--------------|
| Revenues                    |                                    | 1st Year              |              | 2nd Year               |              | 3rd Year               |              |
|                             |                                    | Unit                  | Amount (USD) | Unit                   | Amount (USD) | Unit                   | Amount (USD) |
| 1                           | Payment revenue after installation | 5 months/ 1000 USD    | 5000         | 5 months/ more members | 10000        | 5 months/ more members | 15000        |
| 2                           | Register members payment           | 100 household/ 30 USD | 3000         | 100 household/ 30 USD  | 3000         | 100 household/ 30 USD  | 3000         |
| Sub-total                   |                                    | 8,000 USD             |              | 13,000 USD             |              | 18,000 USD             |              |
| Total for 3 years           |                                    | 39,000 USD            |              |                        |              |                        |              |



| Project Budget for Revenues and Expenditures |   |                        |              |                        |              |                        |              |
|--|---|------------------------|--------------|------------------------|--------------|------------------------|--------------|
| Expenditures                                 |   | 1st Year               |              | 2nd Year               |              | 3rd Year               |              |
|  |   | Unit                   | Amount (USD) | Unit                   | Amount (USD) | Unit                   | Amount (USD) |
| 1. Work                                      | Utilities payment                               |                        | 300          |                        | 300          |                        | 300          |
|  | Staff payment                                   | \$ 650/ 4 staff/ month | 31200        | \$ 650/ 4 staff/ month | 31200        | \$ 650/ 4 staff/ month | 31200        |
|  | CDS offices                                     | \$ 100/ month          | 1200         | \$ 100/ month          | 1200         | \$ 100/ month          | 1200         |
|  | Laptops computers                               | \$ 1200/ 4 set         | 4800         |                        | 0            |                        | 0            |
|  | Printer   | \$ 600/ 1 set          | 600          |                        | 0            |                        | 0            |
|  | Desktop computers                               | \$ 400/ 2 set          | 800          |                        | 0            |                        | 0            |
|  | Office furniture                                |                        | 1000         |                        | 0            |                        | 0            |
| 2. Project Construction                      | 6" water pipe PPR                               | 10 km                  | 10000        |                        | 0            |                        | 0            |
|  | 6" water pipe galvanized                        | 10 km                  | 1000         |                        | 0            |                        | 0            |
|  | 6" water pipe normal                            | 10 km                  | 500          |                        | 0            |                        | 0            |
|  | Special fittings                                |                        | 300          |                        |              |                        |              |
|  | Plumbing  |                        | 700          |                        |              |                        |              |
|  | Trenching                                       | KES 10000/ 10 km       | 1000         |                        | 0            |                        | 0            |
|  | Capacity building                               |                        | 1000         |                        | 0            |                        | 0            |
|  | Water line registration                         |                        | 1000         |                        | 0            |                        | 0            |
|  | Household supporting                            | \$ 40/ 100 household   | 4000         |                        | 0            |                        | 0            |
|  | Coparate sacco formation                        |                        | 500          |                        | 0            |                        | 0            |
|  | Water survey works and digitalization           |                        | 1000         |                        | 0            |                        | 0            |
|  | Wah outs and intake construction                |                        | 5000         |                        | 0            |                        | 0            |
| 3. Others                                    | Exchange tour to Mwea/ Ahero irrigation schemes | 35 members for 2 days  | 4500         |                        | 0            |                        | 0            |
|  | Sensitization meeting and outreach activity     | 35 members for 1 day   | 1050         |                        | 0            |                        | 0            |
|  | Video documentations                            | 5 set                  | 250          |                        | 0            |                        | 0            |
|  | Contingency reserve                             |                        | 5000         |                        | 2000         |                        | 2000         |
| Sub-total                                    |   | 76,700 USD             |              | 34,700 USD             |              | 34,700 USD             |              |
| Total for 3 years                            |   | 146,100 USD            |              |                        |              |                        |              |

**Budget Weekly Trend  
(1st Year)**







## **8. Donation Channel**

Donations from all interested parties are welcome. Because of the support from the donors, the project will proceed smoothly. The detailed bank account for donation is as follows:

Account Name: Community Development and Sustainability Organization (CDS).

Account No. A/C no.1183070292

Branch- KCB Bungoma

## **9. Other Components**

### **9.1. Project Sustainability**

The design of this project ensures sustainability in many ways. Firstly, irrigation system is designed and built to be continually used by farmers in Cheptais, ensuring that farming would not be affected by the lack of rainfall during the dry season. So that to increase agricultural production in this area. Secondly, during the implementation of the project, farmers will be provided with relevant training so that they can continue to use the irrigation system on their own after the completion of the project. Thirdly, the irrigation system is based on gravity with low operation and maintenance costs.

Any negative environmental impacts of the methods and practices adopted by the construction contractor will be addressed by incorporating Good Manufacture Practice (GMP) in the construction contract to prevent any negative environmental impacts to the extent possible.

## 9.2. Sample Pictures

**Figure 2:** In Cheptais, people are struggling to get water. They get water by using motorbike, bicycles, donkeys, or just carrying on heads and back.



**Figure 3:** Diversion weir and intake chamber at the SITABICHA-SUSWO irrigation demonstration schemes that was implemented by NELSAP-CU/NBI



Source: Kenya Investment Benefits From The Nile Basin Cooperation. By Nile Basin Initiative  
DU NIL



## References

Luchelle, Feukeng. 2019. KENYA: 642 basins installed to improve irrigation in rural areas. <https://www.afrik21.africa/en/kenya-642-basins-installed-to-improve-irrigation-in-rural-areas/>

Alternative, A. (n.d.). KENYA CLIMATE. Retrieved from Adventure Alternative: <https://www.adventurealternative.com/kenya-climate/>

**CDS Kenya**

Community Development and Sustainability Organization

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