The Kiambu County Water and Sewerage Services Sector Policy, 2017

February 2017
The development of the Kiambu Water and Sewerage Sector Policy was made possible with funding from GIZ - IWaSP, KEWASNET and the Kiambu County Government.
The Water and Sewerage Services
Sector Vision

A county with safe, reliable and sustainable water supply with well managed water resources

Sector Mission Statement

To ensure the provision of adequate and affordable quality water and sanitation services in a sustainable environment.
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Foreword

The overall vision of the water sector in Kiambu County is to ensure a county with safe, reliable and sustainable water supply with well managed water resources. This vision is consistent with overall development mission of the County Government – To make Kiambu County the best County in which to grow live and work.

The achievement of this sector vision will be expected to be realized by effectively managing the County’s natural resources for provision of safe water and sanitation services through accountability and transparency; professionalism; equity; Innovation and partnership. The County Government also aims to realize this vision by providing sufficient safe water for all the residents of Kiambu county for domestic and other uses, ensure that the county’s Natural resources, water and environment are protected, managed, exploited, developed, conserved, and controlled for Socio-Economic development of the County.

In developing the first ever County Water and Sewerage Services sector policy, the department takes cognizance the fact that safe, potable and affordable water plays a key role in advancing the County’s social and economic agenda on economic recovery and poverty reduction. The policy helps us fill the critical gaps that have over time, reduced the benefits of better water services provision that include a weak policy; legal and institutional frameworks and inadequate community and stakeholder participation in the management and provision of water and sewerage services. This policy provides the basis upon which we as a county will correct these failings and ensure the promise of devolution of water and sewerage service delivery accrues to all county residents.

Under the overall county vision - To be the county of choice to live, work and play, the choice of the water sector vision, a county with safe, reliable and sustainable water supply with well managed water resource neatly fits within the parameters set out in the County CIDP to ensure the improvement of the wellbeing of Kiambu residents. The Mission of the water sector - to ensure the provision of adequate and affordable quality water and sanitation services in a sustainable environment, clearly underlies this relationship. It is our sincere hope and prayer that we will all strive to realize these commitments as a team.

Lastly, we thank specifically the efforts and roles played by the Development Partners and Stakeholders in diverse areas of Water, Environment and Natural Resources for making the development of this policy a reality. The challenge now is to translate it from intent to action. A challenge we are now more than ever before ready to undertake.

H.E Governor William Gitau Kabogo
Kiambu County
Acknowledgements

This policy has been prepared with the support of many individuals and institutions. We greatly appreciate the generous financial and logistical support of GIZ International Water Stewardship Program (IWaSP), KEWASNET, NGOs, local community representatives, local private sector, FBOs and all Kiambu County residents who have been part of this process.

The development of this policy was coordinated by the staff from Kiambu County Department of Water, Environment and Natural Resources with a lot of support from all other related sectors – The Office of the Governor, Agriculture, Health, Education, Trade and Industry. I would like to thank all members of the Technical Committee during the development of this policy as well as representatives from other departments for their wonderful stewardship, support and cooperation which enhanced this policy document.

We also wish to acknowledge and thank all persons and institutions whose ideas and materials have been used in compiling this policy document. Many thanks go to Mr Jason Oyugi and Elijah Mujuri of Bridge Africa ADC as the consultants for this policy development process.

Special thanks go to the Governor of Kiambu County, H.E. Governor William Kabogo Gitau, for taking a personal interest in the entire process of supporting the sector planning process and for encouraging the department to deliver a framework to improve the lives of the people of Kiambu County through better water service delivery.

Ms. Esther Wanjiru Njuguna
County Executive Committee Member,
Department of Water, Environment and Natural Resources
Kiambu County Government
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1.0. Introduction

To guide the transformation of Kiambu County, the County’s vision that is well articulated in its CIDP - *Success and prosperity for everyone in a safe and harmonious County*, is anchored on five strategic pillars. These are security, employment, education, health and urban planning. At the macro policy level, the County has also committed to ensure that its residents have access to clean, safe water by increasing capacity of water towers, working to replenish forest cover, sharing of water destined for Nairobi via Kiambu County. Currently, the County government has also undertaken to prioritize urban planning and the development of infrastructure across the County which will include proper spatial planning to ensure development of urban centres with sufficient sanitation, sewerage systems and waste disposal facilities.

1.1 Position and Size

Kiambu County is one of the 47 counties in the Republic of Kenya. It is located in the central region and covers a total area of 2,543.5 Km$^2$ with 476.3 Km$^2$ under forest cover according to the 2009 Kenya Population and Housing Census. Kiambu County borders Nairobi and Kajiado Counties to the South, Machakos to the East, Murang’a to the North and North East, Nyandarua to the North West, and Nakuru to the West as indicated in Map 1. The county lies between latitudes 00 25’and 10 20’South of the Equator and Longitude 360 31’and 370 15’East.

1.2 Physiographic and Natural Conditions

1.2.1 Physical & Topographic Features

Kiambu County is divided into four broad topographical zones viz, Upper Highland, Lower Highland, Upper Midland and Lower Midland Zone. The Upper Highland Zone is found in Lari Constituency and it is an extension of the Aberdare ranges that lies at an altitude of 1,800-2,550 metres above sea level. It is dominated by highly dissected ranges and it is very wet, steep and important as a water catchment area. The lower highland zone is mostly found in Limuru and some parts of Gatundu North, Gatundu South, Githunguri and Kabete constituencies. The area is characterized by hills, plateaus, and high-elevation plains. The area lies between 1,500-1,800 metres above sea level and is generally a tea and dairy zone though some activities like maize, horticultural crops and sheep farming are also practiced.

The upper midland zone lies between 1,300-1,500 metres above sea level and it covers mostly parts of Juja and other constituencies with the exception of Lari. The landscape comprises of volcanic middle level uplands. The lower midland zone partly covers Thika Town (Gatuanyaga), Limuru and Kikuyu constituencies. The area lies between 1,200-1,360 metres above sea level. The soils in the midland zone are dissected and are easily eroded. Other physical features include steep slopes and valleys, which are unsuitable for cultivation. Some parts are also covered by forests.

The county is covered by three broad categories of soils which are: high level upland soils, plateau soils and volcanic footbridges soils. These soils are of varying fertility levels with soils from high-level uplands, which are from volcanic rocks, being very fertile. Their fertility is conducive for livestock keeping and growth of various cash crops and food crops such as tea, coffee, horticultural products, pyrethrum, vegetables, maize, beans, peas and potatoes. These soils are found in the highlands, mostly in Gatundu South, Gatundu North, Githunguri, Kiambu, Kiambaa, Lari, Kikuyu, Kabete and Limuru Constituencies. Low fertility soils are mainly found in the middle zone and the eastern part of the county which form part of the semi-arid areas. The soils are sandy or clay and can support drought resistant crops such as soya beans and sunflower as well as ranching. These
soils are mostly found in parts of Juja, Thika Town, Ruiru, Kabete, Limuru, Gatundu North and Gatundu South Constituencies.

Most parts of the county are covered by soils from volcanic footbridges. These are well drained with moderate fertility. They are red to dark brown friable clays, which are suited for cash crops like coffee, tea and pyrethrum. However, parts of Thika Town, Ruiru, Juja and Lari constituencies are covered by shallow soils, which are poorly drained, and these areas are characterized by low rainfall, which severely limits agricultural development. However, these areas are suitable for ranching and growth of drought resistant crops.

1.2.2 Ecological Conditions
Water in the county is from two principal sources-surface and sub-surface. About 90 percent of the county’s water resource comprises of both surface water resources and ground water potential. The county is divided into several sub-catchments areas. The first one is Nairobi River Sub-catchment which occupies the southern part of the county with the major rivers being Nairobi, Gitaru, Gitahuru, Karura, Ruirwaka, and Gatharaini. The second one is Kamiti and Ruiru Rivers Sub-catchment which is located to the north of the Nairobi river sub-catchment. It has eight permanent rivers which include Riara, Kiu, Kamiti, Makuyu, Ruiru, Bathi, Gatamaiyu and Komothai. The third one is the Aberdare plateau that contributes to the availability of two sub-catchments areas comprising of Thiririka and Ndarugu Rivers. The main streams found in the two areas include Mugutha, Theta, Thiririka, Ruabora, Ndarugu and Komu. They flow from Nairobi, Kamiti, Ruiru, Thiririka, and Ndarugu sub-catchments to form Athi River sub-catchment. The fourth is the Chania River and its tributaries comprising of Thika and Karimimu Rivers which rise from the slopes of Mt. Kinangop in the Aberdares range. Last one is Ewaso Kedong sub catchment which runs in the North-South direction and occupies the western part of the county. It has several streams that normally form swamps.
1.2.3 Climatic Conditions

The county experiences bi-modal type of rainfall. The long rains fall between Mid-March to May followed by a cold season usually with drizzles and frost during June to August and the short rains between Mid-October to November. The annual rainfall varies with altitude, with higher areas receiving as high as 2,000 mm and lower areas of Thika Town constituency receiving as low as 600 mm. The average rainfall received by the county is 1,200 mm. The mean temperature in the county is 26°C with temperatures ranging from 7°C in the upper highlands areas of Limuru and some parts of Gatundu North, Gatundu South, Githunguri and Kabete constituencies, to 34°C in the lower midland zone found partly in Thika Town constituency (Gatuanyaga), Kikuyu, Limuru and Kabete constituencies (Ndeiya and Karai). July and August are the months during which the lowest temperatures are experienced, whereas January to March are the hottest months. The county's average relative humidity ranges from 54 percent in the dry months and 300 percent in the wet months of March up to August.

1.3 Administrative and Political Units

1.3.1 Administrative Units

Currently, the county is divided into twelve (12) sub-counties namely Limuru, Kikuyu, Lari, Gatundu South, Gatundu North, Githunguri, Kiambu, Ruiru, Thika, Juja, Kiambaa, and Kabete. These Sub Counties are further divided into 60 electoral wards. Ruiru Constituency has the highest number of wards with 8 wards, while the rest of the Sub Counties have five each with the exemption of Kiambu, Gatundu South and Gatundu North which has four each.

Table 1: County Electoral Wards by Constituency

<table>
<thead>
<tr>
<th>Sub County</th>
<th>Area (Km²)</th>
<th>No. of Wards</th>
<th>No. of Sub Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gatundu South</td>
<td>192.4</td>
<td>4</td>
<td>38</td>
</tr>
<tr>
<td>Gatundu North</td>
<td>286.0</td>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td>Ruiru</td>
<td>291.9</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Juja</td>
<td>326.6</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Thika</td>
<td>453.6</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Githunguri</td>
<td>173.5</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>Kiambu</td>
<td>189.1</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td>Limuru</td>
<td>281.7</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>Kikuyu</td>
<td>236.1</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>Lari</td>
<td>439.2</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Kikuyu</td>
<td>175.8</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>Kabete</td>
<td>60.3</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2543.2</td>
<td>60</td>
<td>233</td>
</tr>
</tbody>
</table>

Figure 2: Map of Kiambu Sub Counties/Constituencies

Source: Kiambu County Government, 2016

1.4 Demographic Features

1.4.1 Population Size and Composition

According to the 2009 Kenya Population and Housing Census, Kiambu County population for 2012 was projected to be 1,766,058 with 873,200 males and 892,857 females. Further, the population is expected to reach 2,032,464 people by the end of 2017. This is influenced by the county's high
population growth rate, which is at 2.81 per cent and the influx of people working in the city who prefer to stay in Kiambu and its environs where there is less congestion and well developed infrastructure. In terms of gender, the sex ratio of male to female is approximately 1:1.02. The table below gives population projections for 2012, 2015 and 2017 by gender and different age cohorts using 2009 as the base year.

Table 2: Population projections by urban centers

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</thead>
<tbody>
<tr>
<td>Gatundu</td>
<td>2,580</td>
<td>2,970</td>
<td>5,550</td>
<td>2,807</td>
<td>3,231</td>
<td>6,038</td>
<td>3,054</td>
<td>3,515</td>
<td>6,569</td>
</tr>
<tr>
<td>Githunguri</td>
<td>4,843</td>
<td>5,164</td>
<td>10,007</td>
<td>5,269</td>
<td>5,618</td>
<td>10,887</td>
<td>5,732</td>
<td>6,112</td>
<td>11,845</td>
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<tr>
<td>Juja</td>
<td>20,488</td>
<td>19,958</td>
<td>40,446</td>
<td>22,290</td>
<td>21,713</td>
<td>44,003</td>
<td>24,251</td>
<td>23,623</td>
<td>47,874</td>
</tr>
<tr>
<td>Limuru</td>
<td>39,433</td>
<td>40,098</td>
<td>79,531</td>
<td>42,901</td>
<td>43,625</td>
<td>86,526</td>
<td>46,675</td>
<td>47,462</td>
<td>94,137</td>
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<tr>
<td>Kiambu</td>
<td>41,247</td>
<td>42,908</td>
<td>84,155</td>
<td>44,875</td>
<td>46,682</td>
<td>91,557</td>
<td>48,822</td>
<td>50,788</td>
<td>99,610</td>
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<tr>
<td>Karuri</td>
<td>53,735</td>
<td>53,981</td>
<td>107,716</td>
<td>58,461</td>
<td>58,729</td>
<td>117,190</td>
<td>63,603</td>
<td>63,894</td>
<td>127,498</td>
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<tr>
<td>Thika</td>
<td>68,408</td>
<td>68,509</td>
<td>136,917</td>
<td>74,425</td>
<td>74,535</td>
<td>148,960</td>
<td>80,971</td>
<td>81,090</td>
<td>162,061</td>
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<tr>
<td>Ruiru</td>
<td>119,147</td>
<td>119,711</td>
<td>238,858</td>
<td>129,627</td>
<td>130,240</td>
<td>259,867</td>
<td>141,028</td>
<td>141,696</td>
<td>282,723</td>
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<tr>
<td>Kikuyu</td>
<td>114,357</td>
<td>118,874</td>
<td>233,231</td>
<td>124,415</td>
<td>129,330</td>
<td>253,745</td>
<td>135,358</td>
<td>140,705</td>
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<tr>
<td>Total</td>
<td>464,238</td>
<td>472,173</td>
<td>936,411</td>
<td>505,007</td>
<td>513,703</td>
<td>1,018,773</td>
<td>549,494</td>
<td>558,886</td>
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<tbody>
<tr>
<td>Gatundu South</td>
<td>114,180</td>
<td>593</td>
<td>124,223</td>
<td>645</td>
<td>135,147</td>
<td>702</td>
<td>142,962</td>
<td>742</td>
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<tr>
<td>Gatundu North</td>
<td>100,611</td>
<td>352</td>
<td>109,460</td>
<td>383</td>
<td>119,088</td>
<td>417</td>
<td>125,972</td>
<td>441</td>
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<tr>
<td>Juja</td>
<td>118,793</td>
<td>365</td>
<td>129,241</td>
<td>397</td>
<td>140,609</td>
<td>432</td>
<td>148,737</td>
<td>457</td>
</tr>
<tr>
<td>Thika Town</td>
<td>165,342</td>
<td>760</td>
<td>179,885</td>
<td>827</td>
<td>195,706</td>
<td>900</td>
<td>207,020</td>
<td>952</td>
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<tr>
<td>Ruiru</td>
<td>201,986</td>
<td>1,003</td>
<td>219,753</td>
<td>1,091</td>
<td>239,080</td>
<td>1,187</td>
<td>252,901</td>
<td>1,256</td>
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<tr>
<td>Githunguri</td>
<td>147,763</td>
<td>852</td>
<td>160,760</td>
<td>927</td>
<td>174,899</td>
<td>1,008</td>
<td>185,010</td>
<td>1,067</td>
</tr>
<tr>
<td>Kiambaa</td>
<td>145,053</td>
<td>1,979</td>
<td>157,811</td>
<td>2,153</td>
<td>171,691</td>
<td>2,342</td>
<td>181,617</td>
<td>2,478</td>
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<td>Kiambu</td>
<td>108,698</td>
<td>1,026</td>
<td>118,259</td>
<td>1,116</td>
<td>128,660</td>
<td>1,214</td>
<td>136,098</td>
<td>1,285</td>
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<tr>
<td>Kabete</td>
<td>140,427</td>
<td>2,329</td>
<td>152,778</td>
<td>2,534</td>
<td>166,216</td>
<td>2,757</td>
<td>175,825</td>
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<td>Kikuyu</td>
<td>125,402</td>
<td>713</td>
<td>136,432</td>
<td>776</td>
<td>148,432</td>
<td>844</td>
<td>157,012</td>
<td>893</td>
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<tr>
<td>Limuru</td>
<td>131,132</td>
<td>466</td>
<td>142,666</td>
<td>507</td>
<td>155,214</td>
<td>552</td>
<td>164,187</td>
<td>583</td>
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<tr>
<td>Lari</td>
<td>123,895</td>
<td>282</td>
<td>134,792</td>
<td>307</td>
<td>146,648</td>
<td>334</td>
<td>155,125</td>
<td>353</td>
</tr>
<tr>
<td>Total</td>
<td>1,623,282</td>
<td>638</td>
<td>1,766,058</td>
<td>694</td>
<td>1,921,392</td>
<td>755</td>
<td>2,032,466</td>
<td>799</td>
</tr>
</tbody>
</table>
Ruiru constituency had the highest population with a total of 219,752 people while Gatundu North constituency had the lowest population of 109,460 people. The county’s population is projected to be 1,921,392 in 2015, and 2,032,466 in 2017.

1.5 Land and Land Use

1.5.1 Mean holding size

The size of arable land in the county is 1,878.4 Km² and the non-arable land is 649.7 Km² and 15.5 Km² is under water mass. The average holding size of land is approximately 0.36 Ha on small scale and 69.5 Ha on large scale. The small land holdings is mostly found in upper parts of Gatundu North, Gatundu South, Kiambaa, Limuru and Kikuyu constituencies. The fragmentation of the land has made it uneconomical and hence majority of the farmers are converting their farms into residential plots to supplement the meagre income from the farms. The large land holdings are usually found in the lower parts of the county especially in Juja constituency and the upper highlands in Limuru and Lari constituencies.

1.5.2 Percentage of land with title deeds

Plans indicated that 85 percent of the population with land in the county has title deeds to their land and there are no recorded cases of incidences of landlessness. The remaining 15 percent have not received their title deeds due to unfinished land adjudication process and non-payment of the necessary levies.
2.0. The National and County Governance Context

2.1. The Constitution of Kenya

Chapter 11 of The constitution of Kenya 2010 provides for a devolved system of governance aimed at promoting democratic and accountable exercise of power, the equitable sharing of resources and responsive and effective delivery of services, while empowering citizen’s participation through the process. The system created a two-tier level of government leading to creation of 47 counties led by elected county governments. Each level has its own set of functions which though distinct require co-operative inter-relationships in the exercise of their functions. The provision of water and sanitation services and the implementation of national polices in natural environment are two such key roles and responsibilities bestowed on the County Government in Schedule of The CoK 2010.

The Constitution further recognizes that access to safe and sufficient water is a basic human right. Under the economic and social rights in the Bill of Rights, Article 43 of The Constitution of Kenya provides that every person has the right to reasonable standards of sanitation as well as to clean and safe water in adequate quantities. In assigning the responsibility for water supply and sanitation provision to 47 newly established counties, The Constitution had anticipated that transfer of these functions would take place over the three year period of transition following the first county government elections in March 2013.

The main challenges in such an asymmetric process include: (i) avoiding an overly complex transition process; (ii) ensuring counties really are capable of carrying functions out; and, (iii) managing continuity of public service delivery without disruption. In an attempt to respond to these challenges, The Constitution provides in Article 21(2) under the implementation of rights and fundamental freedoms that the State shall take legislative, policy and other measures, including the setting of standards, to achieve the progressive realization of the rights guaranteed under Article 43. The challenges of water governance including problems of water shortage and subsequent effects on pastoral livelihood in Turkana County like in many other Counties of Northern Kenya is a critical development challenge in the context of Kenya’s new found constitutional environment – with a strong focus on addressing inequalities, marginalization and citizen empowerment.

Table 4: Summary of the allocation of roles in the Constitution of Kenya on Water, Environment and Natural resources in Schedule Four

<table>
<thead>
<tr>
<th>Sector</th>
<th>National Government</th>
<th>County Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water, Sanitation and Hygiene</td>
<td>• Water protection, securing sufficient residual water,</td>
<td>• Storm water management systems in built-up areas; and</td>
</tr>
<tr>
<td></td>
<td>• Hydraulic engineering and the safety of dams;</td>
<td>• Water and sanitation services.</td>
</tr>
<tr>
<td></td>
<td>• Use of international waters and water resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Capacity Building and technical assistance to counties</td>
<td></td>
</tr>
<tr>
<td>Environment and Natural</td>
<td>• Fishing, hunting and gathering;</td>
<td>• Agriculture including disease control</td>
</tr>
<tr>
<td>Resources</td>
<td>• Protection of animals and wildlife;</td>
<td>• Pollution control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Implementation of specific national government policies on natural resources and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>environmental conservation</td>
</tr>
<tr>
<td>Energy</td>
<td>• Energy policy</td>
<td>• Electricity and gas reticulation and energy regulation</td>
</tr>
<tr>
<td>Public Investments</td>
<td>• Disaster management</td>
<td>• County public works</td>
</tr>
<tr>
<td></td>
<td>• National Public Works</td>
<td>• Public participation in governance at the local level</td>
</tr>
<tr>
<td></td>
<td>• Capacity building and TA</td>
<td>• Fire and disaster management</td>
</tr>
</tbody>
</table>
2.2. Vision 2030 and other National Policy Goals

The Government of Kenya published the Kenya Vision 2030 in 2007, which is the country’s new development blueprint covering the period from 2008 to 2030. The Vision 2030 aims to transform Kenya into a newly industrialised, “middle-income country providing a high quality of life to all its citizens by the year 2030”.

The Vision 2030 is based on three pillars of development namely, economic, the social and the political. The economic pillar aims to achieve an average GDP growth rate of 10% per annum beginning in 2012. The social pillar seeks to build a just and cohesive society with social equity in a clean and secure environment. The political pillar aims to realise a democratic political system, and protects the rights and freedoms of every individual in Kenyan society. The national development targets on the water sector in the Vision 2030 are as follows:

- **Water and sanitation** - to ensure that improved water and sanitation are available and accessible to all by 2030,
- **Agriculture** - to increase the area under irrigation to 1.2 million ha by 2030 for increase of agricultural production,
- **Environment** - to be a nation that has a clean, secure and sustainable environment by 2030, and
- **Energy** - to generate more energy and increase efficiency in energy sector.

The broad key priority areas of the Second MTP of Vision 2030 include: employment creation; development of human resource through expansion and improvement in quality education, health and other social services; reducing the dependence of the economy on rain fed agriculture through expansion of irrigation; higher investment in alternative and green sources of energy; improving the economy’s competitiveness through increased investment and modernization of infrastructure; increasing the ratio of saving, investment and exports to GDP; implementation of key Kenya Vision 2030 Flagship projects including development of the LAPSSET Corridor of which Turkana County is a key development player. This policy recognizes this opportunity as a major determinant of some of the priorities that the water sector has to respond to both in the medium and short term.

In terms of water resources and based on the national development target in Kenya Vision 2030 and the Kenya National Water Masterplan, the water demand required for water resources development and management planning were estimated for the domestic, industrial, irrigation, livestock, wildlife and inland fisheries water use as follows:

**Table 5: Available water resources and water demands by catchment area**

<table>
<thead>
<tr>
<th>Catchment Area</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Water Resources (a)</td>
<td>Water Demand (b)</td>
<td>(b)/(a)</td>
</tr>
<tr>
<td>LVNCA</td>
<td>4,742</td>
<td>228</td>
<td>5%</td>
</tr>
<tr>
<td>LVSCA</td>
<td>4,976</td>
<td>385</td>
<td>8%</td>
</tr>
<tr>
<td>RVCA</td>
<td>2,559</td>
<td>357</td>
<td>14%</td>
</tr>
<tr>
<td>ACA</td>
<td>1,503</td>
<td>1,145</td>
<td>76%</td>
</tr>
<tr>
<td>TCA</td>
<td>6,533</td>
<td>891</td>
<td>14%</td>
</tr>
<tr>
<td>ENNCA</td>
<td>2,251</td>
<td>212</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>22,564</td>
<td>3,218</td>
<td>14%</td>
</tr>
</tbody>
</table>

Source: JICA Study Team (Ref. Main Report Part A, Section 6.11)
This future water demands are projected including irrigation water demand for new development area of 1.2 million ha targeted in Kenya Vision 2030 without benefit of any water balance study. In the target year 2030, water demand will increase in all catchment areas, and water balance is expected to be tight in all areas. The catchment areas except LVNCA will have large water deficits as predicted by the high water demand/water resource ratios of more than 40%, and the irrigation water demands corresponding to the irrigation area proposed by Kenya Vision 2030 need to be reduced. On the contrary, LVNCA showing water demand/water resource ratios of less than 40% seems to be able to have a water balance for the predicted water demands by appropriate water resources developments.

### 2.3. The Draft National Water Policy

The Draft National Water Policy of 2012 (NWP 2012) which was developed in response to the mandate, vision and mission of the ministry responsible for Water and Irrigation in Kenya was informed by the gains made during the past decade of implementation of reforms in the water sector anchored on the National Water Policy of 1999 (NWP 1999) also referred to as Sessional Paper No. 1 on National Policy on Water Resources Management and Development, the Water Act 2002, existing related policy documents, and the globally recognized Integrated Water Resources Management (IWRM) approach. These reforms culminated into the development of the WSSP 2010 – 2015, which was designed to institutionalize a stakeholder and participatory approach to the management of water affairs in the country.

The draft policy takes into account requirements of the Constitution of Kenya 2010 with regard to (1) consideration of water as a natural resource, and (2) the right to water by all; the Kenya Vision 2030; the Sustainable Development Goals (SDGs), and other national policies and Strategies. In this regard it will inform the development of the Water Bill 2014 which will replace the Water Act 2002. The policy therefore consolidates the highlights of previous Water Sector reforms and the key elements of the good governance initiatives in the sector over the past 10 years which include;

- **Subsidiarity and decentralization** – In line with the government’s overall decentralization policy, decisions in the water sector are made at the lowest appropriate level, making sector institutions more autonomous. For example, water utilities have been transformed into autonomous, registered and regulated shareholder companies, owned by the counties.
- **Separation of service delivery, policy formulation and regulation to achieve higher efficiency and transparency.**
- **Increased equity achieved by aligning the sector with the human right to water and sanitation and by adopting a pro-poor approach in sector policies and strategies.**
- **Transparency and accountability measures include efforts by sector institutions reporting regularly to the public and by stronger enforcement of regulations and complaint mechanisms.**
- **The participation and empowerment of water users and consumers through more than 400 WRUAs, WAGs and mechanisms such as public hearings at community level.**

### 2.4. The National Hygiene and Sanitation Strategy

The National Hygiene and Sanitation Strategy recognizes that sanitation is now a constitutional right in Kenya. The Kenya Environmental Sanitation and Hygiene (KESH) Policy 2016-2030 lays out a robust framework for steering environmental sanitation and hygiene interventions in Kenya for the next fifteen
years. The policy takes cognizance of the new dispensation under the Constitution of Kenya 2010, the Kenya Vision 2030 and the global Sustainable Development Goals (SDGs). The Policy is rights-based, designed to enable every person to enjoy to the greatest extent possible, the right to the highest attainable standard of health, the right to reasonable standards of sanitation, and the right to a clean and healthy environment. Functionally, the Policy provides the framework for the execution of the functions related to sanitation under the Fourth Schedule of the Constitution that are respectively assigned to the National Government and the 47 County Governments.

The Policy proceeds from the perspective that the Kenyan people will only achieve full prosperity when their rights to sanitation and a clean and healthy environment are assured. It is by the protection, promotion and fulfilment of these rights that a wide range of other rights and capabilities can be enjoyed. To this end, it provides broad guidelines for both state and non-state actors at all levels as they work together towards ensuring universal access to improved sanitation and a clean and healthy environment by 2030. Primarily, the Policy aims to increase the proportion of the population with access to improved sanitation to 100 percent and ensure a clean and healthy environment for all in Kenya by 2030.

The broad objective of the Kenya Environmental Sanitation and Hygiene Policy is to ensure sustainable access to improved sanitation and hygiene by all Kenyans by 2030. This will be achieved by strategic interventions including eradicating Open Defecation (OD); ensuring complete access to improved sanitation in all rural and urban areas in Kenya; and increasing public investment in sanitation and hygiene from 0.2 percent to at least 0.5 percent of the GDP by 2020 and ultimately to 0.9 percent of the GDP by the year 2030.

This is pursued through eight (8) key objectives developed towards attaining the goal;

- To scale up rural and urban sanitation towards an open defecation free (ODF) Kenya and universal access to improved sanitation by 2030.
- To assure a clean and healthy environment for all Kenyans through appropriate technology choices for waste management and pollution control.
- To foster strong private sector participation and investment in creating sanitation demand and increasing uptake of appropriate products and services.
- To establish an enabling legal and regulatory environment for sanitation at both national and county levels.
- To strengthen institutional and human resource capacity of the environmental sanitation sector for efficient and effective provision of sanitation and hygiene services.
- To ensure sustainable financing for sanitation through public and private investment.
- To establish an effective research and development framework for sanitation to improve appropriate technology choices and promote evidence-informed sector decision-making.
- To establish a functionally effective monitoring and evaluation framework for the sanitation sector to ensure maximum accountability in policy implementation at all levels.

2.5. The Water Act 2016

In order to realign the water sector with the Constitution of Kenya 2010 (COK 2010) a draft new Water Policy 2013 has been prepared together with The Water Act 2016 which was enacted in September 2016. The new law which is yet to be gazetted seeks repeals the Water Act of 2002 in order to align it to the new Constitution of Kenya (COK 2010) and also takes cognizance of the achievement of the water sector reforms initiated by the Water Act 2002. However, for the new law
to take effect, the Ministry of Water and Irrigation is yet to finalize a transition plan to effect the implementation of the new Act. The new Act among others contains the following changes;

The Act:

- Vests water resources in the national government gives control of water resource use in the Cabinet Secretary
- Provides for changes to the institutional framework as follows:
  - WRMA TO WRA
  - CAACs to Basin Water Resources Committee
  - WSBs to Waterworks Development Agencies
  - Local Authority WSPs to county government WSPs
  - National Water to Water Storage Authority
  - WSTF to Water Sector Trust Fund
  - Water Appeal Board to Water Tribunal

The Water Act 2016 provides changes to the law on water resources as follows:

- Water resources remain a national resource with control vested in the Cabinet Secretary
- Allocation, regulation and augmentation remain functions of the national government to be exercised by national government entities.
- Charging for water use retained
- Provides for shared functions including planning, water storage and flood control.

Further, The Water Act, 2016 provides for changes to the law on water services as follows:

- County governments are provided with the statutory right to incorporate WSPs
- Ring fencing of water revenues continued – through corporatization of WSPs.
- Water revenues may be used to repay loans borrowed for infrastructure investments.

2.6. Kiambu County Integrated Development Plan (CIDP)

The Kiambu CIDP is anchored on five strategic pillars. These are security, employment, education, health and urban planning. With regard to security, the goal is to ensure that everywhere is safe and secure, every time. The foundations under the security pillar will include crime reporting via ICT enabled systems, lighting, partnership with the police, community policing and other related interventions.

Achievement of the employment pillar anticipates that everyone will be gainfully engaged and wealthier. Foundations under the employment pillar to help spur economic growth include the pooling of youth into co-operatives to access capital, access to appropriate technologies, creating skills and linking the youth with entrepreneurial mentors, providing incubation hubs to harness and grow business ideas, creating ICT centres and creation of an enabling environment to attract Foreign Direct Investments (FDI) in general and investments from the diaspora in particular.
In agriculture, the County aims to develop and implement a coffee sector revival strategy, provide agricultural inputs at lower or subsidised cost to the farmers, start new factories for low cost animal feeds, encourage value addition for agricultural produce such as pineapple, dairy, hides, tea, coffee, fish among other activities.

On physical infrastructure, the County Government aims at developing key infrastructural facilities and public works countywide to stimulate investment, create employment and reduce poverty. As part of these processes, the county government aims at providing excellent waste management and sewerage services and working to establish a county central market for abattoirs for beef and chicken and invest in or promote packaging meat products for export. In the energy sector, it will endeavour to promote micro power generation, green energy including wind, biogas, biodiesel and solar, briquetting for solid waste management and fuel supply.

The County will also ensure that residents have access to clean, safe water by increasing capacity of water towers, working to replenish forest cover, sharing of water destined for Nairobi via Kiambu County. In addition, the County will develop the tourism sector to ensure Kiambu becomes a tourist hub, and the most preferred inland tourist destination.

The education pillar aims to have everyone educated, skilled and competent. With early childhood development being a fully devolved function, initiatives will be implemented to boost the County's skills base and ensure that the quality of mentorship and talent development addresses the challenges of modern day.

Under health, the county's aim is to have everyone healthier and strong. Our vision for the health sector is the provision of accessible, affordable and quality health care for all people of Kiambu. The County shall, in addition to implementing initiatives to ensure free maternal care, invest in the increase of the number of ambulances to rapidly respond to emergency situations. In this respect, the County government will work in harmony with the national government to increase the number of medical officers within the County in line with the Government goal of Universal Health.

In terms of urban planning and the development of infrastructure across the County, the county has prioritized proper spatial planning to ensure development of urban centres with sufficient sanitation, sewerage systems and waste disposal facilities. It is envisaged that the County will establish an Authority for overseeing the maintenance of the core access road networks in the County as well the development and implementation of an Integrated and Comprehensive Road Policy which dictates a co-ordinated approach in the mobilization and utilization of resources for the construction of feeder roads.

2.7. Methodology for the development of this Water Policy

An essential aspect of the policy development process has been the recognition of the multiple sectoral interests and players in the sector, inter-governmental collaboration taking into account the various roles and responsibilities of different players in water services delivery, water resources management and stakeholder participation.

This policy was drafted over the period of November 2016 to April 2017. Table 1 below shows the organizational setup for preparing the plan which consists of a multi stakeholder Technical Committee (TC) under the leadership of the CEC Water, Environment and Natural Resources. The technical team also supported the stakeholder engagement process with support from the technical
experts who supported the preparation of the policy progressively. The overview of the main activities and time frames of the policy preparation included the following.

Table 6: Water and Sewage Services Policy Development Schedule

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>County Department of Water, Environment and Natural Resources initiation of consultative processes for policy development</td>
<td>August 2016</td>
</tr>
<tr>
<td>Formulation of Work-plan</td>
<td>August 2016</td>
</tr>
<tr>
<td>Situation Analysis Workshop</td>
<td>December 2016</td>
</tr>
<tr>
<td>Literature review</td>
<td>November-December 2016</td>
</tr>
<tr>
<td>Policy Design Workshop</td>
<td>January 2017</td>
</tr>
<tr>
<td>Draft 1 of Policy and Policy Validation Workshop by Technical Team</td>
<td>January 2017</td>
</tr>
<tr>
<td>Public Consultations</td>
<td>February/March 2017</td>
</tr>
<tr>
<td>Draft 2 and finalization of Sector Policy</td>
<td>March 2017</td>
</tr>
<tr>
<td>Adoption of Policy</td>
<td>April 2017</td>
</tr>
</tbody>
</table>

It should be noted that the Policy Planning process was dynamic and developed from a thorough and iterative process of stakeholder consultations and lessons learnt from other counties. In view of the close inter-linkages between water, health, land and environment, there was active participation of stakeholders from the:

- Public sector institutions represented by National and County Government ministries and institutions
- Private sector;
- Civil society Organizations;
- Community based organizations and water users associations;
- International organizations and development partners;
- Water services providers; and
- Regional Organizations dealing with shared water resources

3.0. Vision, Mission and Strategic Goals of the Water Sector Policy

The vision of the water sector in Kiambu County is derived from the overall County vision and other development challenges.

The Vision;

_A county with safe, reliable and sustainable water supply with well managed water resources_
The Mission of the water sector is;

*To ensure the provision of adequate and affordable quality water and sanitation services in a sustainable environment.*

**Strategic Goals**

The Strategic Goals of this policy will be;

1. To restore catchment areas and water sources through Integrated Water Resource Management
2. To realize universal access to adequate, affordable, safe water and sanitation services
3. To realize universal access to improved sanitation, sewerage, drainage and waste management system
4. To ensure availability of water for irrigation and other agricultural purposes
5. To provide adequate and quality water to all public health and education institutions, industries and trading centres in the County.
6. To improve planning, coordination and management of the water sector.

### 3.1. Guiding Sector Principles

The water sector guiding principles will include the following;

- Right to water with a pro-poor orientation
- Autonomy of service providers
- Sustainability of water and sewerage service delivery
- Stakeholder participation
- Gender mainstreaming in the management of water resources and services
- Socially responsive commercialization for service delivery
- Professionalizing the sector
- Water stewardship
- Environmental sensitivity
- Good governance practices on all levels
- Ring fencing of water revenues
- Public Private Partnership (PPP)
- “User pays and polluter pays” principles.
4.0. Water Resources, Environment and Climate Change

4.1. Situation Context for the County Water Resources

4.1.1. Water Resources

Surface and Ground Water Resources

Kiambu County is endowed with both surface and ground water resources. The county has sixteen permanent rivers originating from Aberdare Ranges, which is the main water tower for the county. The major rivers that meet the county water demand are; Ndarugu, Thiririka, Ruiru, Kamiti and Kiu, all of which eventually drain into Athi River, and five major wetlands viz; Kikuyu, Lari, Theta, Kiganjo and Gacii wetlands.

The eastern part of the county that includes Thika, Gatundu, Ruiru and Juja is well endowed with surface water from Chania, Thika, Karimenu, Ruabora, Ndarugu, Thiririka, Theta, Mukuyu, Ruiru rivers. The western part of the county that includes Limuru, Kikuyu, Kiambu, Karuri, Lari and Githunguri areas has limited surface sources, hence rely on underground water sources mainly boreholes. However, some areas of ground water sources have high fluoride levels which cause negative effects to both people and livestock, and residue effects in crops.

Table 7: Catchment discharge (m$^3$/day) – can we get source of this data and when?

<table>
<thead>
<tr>
<th>River</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kamiti</td>
<td>3,620</td>
<td>216,000</td>
</tr>
<tr>
<td>Ruiru</td>
<td>38,790</td>
<td>1,331,300</td>
</tr>
<tr>
<td>Thirirka</td>
<td>2,160</td>
<td>776,740</td>
</tr>
<tr>
<td>Ndarugu</td>
<td>3,500</td>
<td>662,770</td>
</tr>
</tbody>
</table>

Ground Water

Kiambu County is in a sub catchment that has two main aquifers; the Nairobi Suite and Basement Athi Suite. Most of the ground water exploitation is from the Nairobi Suite which is predominantly volcanic.

Kiambu County falls within the Upper Athi Catchment Area, which covers seven Sub-Catchments viz;

1) 3BA (Nairobi)
2) 3BB (Kamiti, Riara, Kiu),
3) 3BC (Ruiru, Mukuyu, Gatamaiyu),
4) 3BD (Thiririka & Theta),
5) 3CB (Ndarugu, Ruabora)
6) 4CA (Chania)
7) 3DA (Athi River)
4.1.2. Environment

Kiambu County has urban, peri urban and rural populations, with forest cover of 16.5%, which is above the national required cover of 10%. The main land use type is farming, with coffee and tea being the major cash crop of the county. With coming up of the county governments and nearness to Nairobi, Kiambu County is currently experiencing fast population growth with major land use changes being conversion of land from agriculture to urban centres and settlement. This has put a strain on the county water resources, including:

- riparian and wetland encroachment through construction and farming activities
- increase in both effluent and solid waste
- strain on the sewerage system and
- pollution of the water resources from effluent and solid waste from urban, peri urban settlements, industrial waste, and agricultural chemicals

In addition, there is increased environmental degradation as a result of the soil erosion, deforestation, and changes of wetlands into other landforms, through encroachment.

Table 8: Catchment quality source

<table>
<thead>
<tr>
<th>River</th>
<th>Level of pollution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kamiti, Kiu</td>
<td>Heavily polluted</td>
</tr>
<tr>
<td>Kamiti</td>
<td>Portable</td>
</tr>
<tr>
<td>Ruiru</td>
<td>Portable</td>
</tr>
<tr>
<td>Thiririka</td>
<td>Portable</td>
</tr>
<tr>
<td>Ndaruugu</td>
<td>Portable</td>
</tr>
</tbody>
</table>

4.1.3. Climate Change

Climate change effects within Kiambu County are manifested through changes in rainfall patterns, distribution and amounts. The county experiences less drought and flooding effects in comparison to other counties. In drought periods, the water levels within the rivers and wetlands are reduced resulting in ripple effects of reduced water flows hence less water supply within the county for industrial, household and agriculture.

To mitigate climate change, county government continues to work closely with relevant county and national institutions, to ensure proper waste management, good treatment of effluent wastes to the required standards, sensitization and education on proper and sustainable environmental conservation measures, including afforestation of private land, to make the county environmentally clean.

Other mitigation initiatives by the county include the promotion of climate smart agriculture, soil and water conservation, promotion of water value chains, agricultural value chains, and use of renewable energy, including solar and biogas digesters at the household and institutional levels.

4.2. Current Challenges on Water Resources

- Degradation of the water resources

Some water resources are highly polluted, making them unsafe to use. This is due to pollution of water sources from effluent waste, disposal of waste water from treatment plants, raw effluent discharges in urban and semi urban settlements, and agro-chemical in the agricultural areas.

There is high depletion of vegetal cover due to deforestation within the water resources, including wetlands within the county. This is attributed to population pressure and increased demand for both environmental and forest resources especially timber. Depleted vegetation cover exposes water...
resources to high evapotranspiration rates, more runoff and less/low recharge of ground water aquifers.

There is high rate of depletion of ground water resources due to over extraction, low recharge and environmental degradation.

- **Regulatory challenges**

  Noncompliance with the water resource management rules and regulation, has led to illegal abstraction of both ground and surface waters.

- **Encroachment of water resources**

  Majority of the water resources have challenges of encroachment of riparian zones and wetlands. Some of the riparian lands are under farming of agricultural crops, loosening the soils and clearing the vegetation, hence soils erosion and increased levels of evapotranspiration.

- **Eutrophication of water resources**

  The crop and fertilizer residuals have resulted to eutrophication of waters, presence of invasive plant and animal species and pollution.

- **Poor waste management**

  The county does not have enough resources for development of waste water, effluent and solid waste treatment plants. Some of the few infrastructure available are non-functional or having blockages from uncontrolled solid waste disposal.

### 4.3. Current County Government Initiatives in addressing these challenges

- Permit Data Base (PDB) is in place and all applications are processed for issuance of authorizations and permits.
- The county has set up an office to engage in stakeholder participation on the issues pertaining to water resource management.
- The WRMA and county government is working with 14 WRUAs on water resources conservation and protection.
- WRMA is sensitizing on the importance of artificial ground water recharge. This recharges the ground water aquifers and dilutes fluoride levels. The recharge ranges from small scale like directing roof water into borehole to large scale. WRMA is also engaging development stakeholders to support in the development of a policy to guide on ground water aquifer recharge.
- Promotion of catchment protection, conservation and rehabilitation through IWRM and private sector participation.
- Capacity building of citizens and WRUAs on the importance role of riparian and wetlands in water purification. The sensitization is geared towards ensuring that everyone joins a WRUA.
- Classification of rivers and award quality standards based on the width of riparian zones.
- Demarcation and enforcement of riparian areas zones. According to water law, the riparian zone starts at low and highest water mark or 30 metres.
- Gazettelement of wetlands as public land to prevent encroachment.
• Enforcement of laws requiring proper disposal of water from treatment plants and sewage systems to minimize pollution
• The county government is working with private sector and other development stakeholders in the construction of more waste water treatment plants and sewage systems.
• WRMA is using incentives to enhance catchment conservation as shown in table below.

Table 9 Incentives for water conservation

<table>
<thead>
<tr>
<th>Conservation</th>
<th>10% on WUFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollution</td>
<td></td>
</tr>
<tr>
<td>Class A</td>
<td>0.5 cents</td>
</tr>
<tr>
<td>Class B</td>
<td>10 cents</td>
</tr>
<tr>
<td>Class C</td>
<td>20 cents</td>
</tr>
<tr>
<td>Class D</td>
<td>30 cents</td>
</tr>
</tbody>
</table>

4.4. Policy Goal, Objectives and Measures

Strategic goal

To restore catchment areas and water sources through Integrated Water Resource Management

Policy Objectives

1. To enhance and promote compliance to better water resources management practices
2. To promote the protection and conservation of catchment areas to improve water quality and quantity
3. To promote Integrated Water Resource Management (IWRM) approach
4. To strengthen mitigation to the effects of climate change on water resources
5. To enhance stakeholders involvement and awareness in water resources management

Policy Measures

- Increase public awareness of measures to promote better water resources management
- Work with various agencies and local communities to undertake regular surveillance of county’s water resource
- Upscale enforcement for compliance
- Maintain an updated data base on water resources
- Promote adoption of appropriate technologies in protection and conservation of catchment areas
- Build capacity of communities in conservation and protection of catchment
- Enhance and promote private sector participation in protection, conservation and utilization of water resources
- Promote an enabling environment for management of water resources
- Increase knowledge and application of IWRM
- Strengthen the use of a multi-sectoral approach in the management of water resources
- Promote the adoption of climate smart technologies
- Operationalize the County Climate Fund
- Strengthen stakeholder involvement in water resource management
- Formulate and strengthen water stewardship partnerships
- Strengthen and support Water Users Associations (WRUAs) and Community Forest Associations (CFAs)
5.0. Domestic Water Supply

5.1. Situational Context

Kiambu County is the 3rd urbanized county to Nairobi and Mombasa with over 60% living in the urban areas (for example Kikuyu, Ruiru, and Kiambaa). Main land uses are residential, industrial, commercial, institutional that demand substantive volumes of water (Directorate gets over 200 applications per month increased demand on commensurate services).

General, water supply in the county can be divided into four major sources: direct use of natural water sources such as rivers, streams and springs; developed surface water, such as dams, tanks and pans; developed groundwater such as wells, shallow wells and boreholes; and water supply by the water service providers companies. The pipe distribution network within the current surface area of the Water Service Providers (WSPs) is fairly well done, however the major bottleneck especially for the rural WSPs is high Unaccounted for Water (UFW) which arises from the perception that water is a social good and hence should not be sold.

5.1.1. Urban water supply

According to the latest impact report, Issue No 9/2016, the current coverage of water supply for Kiambu County is estimated to be 54%. Domestic water supply has recorded a noticeable growth over the last 5 years with 35 percent of the population having access to potable water. The County has 9 public water companies (six of which are medium utilities1 – Kikuyu, Karimenu, Limuru, Githunguri, Kiambu and Karuri) two are large utilities (Gatundu and Ruiru-Juja) and one (Thika) is a very large3 utility. Both Thika and Ruiru-Juja are among the best performing water companies in Kenya with Ruiru-Juja merging the second best overall best performing water company in the 2015 performance review period. The capacities of these utilities are as follows:

<table>
<thead>
<tr>
<th>Utility</th>
<th>Total Population in Service Area</th>
<th>Total Population served</th>
<th>Turnover (Ksh. M)</th>
<th>Non revenue Water (%)</th>
<th>Ranking by category</th>
<th>Overall national ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thika</td>
<td>214,533</td>
<td>204,951</td>
<td>481</td>
<td>32</td>
<td>3/8</td>
<td>5/84</td>
</tr>
<tr>
<td>Gatundu</td>
<td>148,410</td>
<td>119,298</td>
<td>68</td>
<td>40</td>
<td>7/28</td>
<td>17/84</td>
</tr>
<tr>
<td>Ruiru-Juja</td>
<td>188,935</td>
<td>145,548</td>
<td>164</td>
<td>28</td>
<td>1/28</td>
<td>2/84</td>
</tr>
<tr>
<td>Kikuyu</td>
<td>295,293</td>
<td>103,985</td>
<td>45</td>
<td>44</td>
<td>11/28</td>
<td>52/84</td>
</tr>
<tr>
<td>Karimenu</td>
<td>96,757</td>
<td>61,603</td>
<td>52</td>
<td>56</td>
<td>6/19</td>
<td>28/84</td>
</tr>
<tr>
<td>Limuru</td>
<td>241,265</td>
<td>109,632</td>
<td>92</td>
<td>32</td>
<td>4/19</td>
<td>20/84</td>
</tr>
<tr>
<td>Githunguri</td>
<td>197,816</td>
<td>18,318</td>
<td>41</td>
<td>49</td>
<td>9/19</td>
<td>48/84</td>
</tr>
<tr>
<td>Kiambu</td>
<td>101,390</td>
<td>37,773</td>
<td>90</td>
<td>35</td>
<td>5/19</td>
<td>25/84</td>
</tr>
<tr>
<td>Karuri</td>
<td>147,440</td>
<td>73,423</td>
<td>66</td>
<td>25</td>
<td>8/19</td>
<td>32/84</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,631,839</td>
<td>874,531</td>
<td><strong>1,119</strong></td>
<td><strong>38</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Utilities that serve between 5,000-10,000 connections
2 Utilities that serve between 10,000-35,000 connections
3 Utilities that serve over 35,000 connections
The Water Companies mainly cover the areas which had Water Schemes operated by Government or Municipalities and they had mainly concentrated in extending and improving water and sanitation services in their areas of operation. Based on available data, the current number of household connections from the WSPs stands at 127,775; there is no data from community water projects. The water demand based on data from WSPs is 244,778 m$^3$/day against a supply of 131,179 m$^3$/day; translating to 113,599 m$^3$/day unmet demand.

5.2. Rural water supply

Despite the existence of 16 permanent rivers in the county, only 63% of the rural population has access to safe and adequate water at reasonable distances to their homesteads. Areas outside the jurisdiction of the 9 Companies either have no water infrastructure or are served by community water projects. Most of these water projects are either not operational or are poorly managed and thus limiting their water coverage. To extend coverage area, any new water project, is handed over to respective WSPs for operation and maintenance after construction. The well managed Community Water Projects sign third party agreements with respective water companies, to enable the WSPs monitor their service delivery.

In Kiambu County, all sub-locations have improved water sources. However the distribution and number of sources vary from one sub-location to another. 726 (54.6%) WPs out of the total improved WPs mapped have an insufficient water supply for households. The average water supply per household during the dry season for the mapped WPs is 100 litres with the least amount of water supply per household recorded as 60 litres per day per household during the dry season.

Current challenges

- Inadequate water sources and where the resource is available its projecting a diminishing trajectory
- Inadequate supply with a deficit of 46% leading to rationing
- Inconsistence of the water sources due to climate change
- Lack of data on water projects and private water vendors.
- Low coverage of water services provision
- Lack of regulations to govern water provision by Water projects, water bowsers and private vendors.
- Quality of water supply is not certain
- Inadequate technical skills to run the projects
- High operational costs thus sustainability issues.
- Encroachment of the catchment areas thus affecting water flows.
- Destruction of water distribution pipes due to upgrading of rural and urban roads.
- Lack of intake protection and wellhead protection.
- Inadequate sanitation in some areas which have no sewer line leading to contamination upon infiltration
County government initiatives to address the issues

- Assistance with provision of pipes to extend coverage hence increase access to piped water
- Development of new water sources in collaboration with other stakeholders.
- Performance contracting with the county on agreed indicators with WSPs.
- Rehabilitation of stalled water project and handing over to WSPs thus improving on governance.
- Improving quality of water by initiating ultra-filtration treatment plants (in two WSPs), and to be replicated by the other WSPs.
- Considerations of alternative sources of power.
- Supporting conservation of catchment areas such as tree planting
- Proper planning by the physical planning department
- Increase storage by e.g. construction of dams for water harvesting
- Provision of water tanks especially to special groups
- Scaling up of latrine coverage, waste management and extension of sewer line

5.3. Policy Goal and Objectives

To realize universal access to adequate, affordable, safe water and sanitation services

In order to realize this goal, the county will pursue the following policy objectives;

1. To promote investment in planning and development of water and sanitation infrastructure to expand network coverage
2. To promote investment in community water projects to reach more rural communities
3. To develop a robust monitoring and evaluation mechanism of non-revenue water
4. To promote capacity of water and wastewater treatment
5. To comply with rules and regulations governing water and sanitation services
6. To promote investments in research and development of green energy solutions

5.4. Policy Measures

The above policy objectives will be achieved through the following policy measures;

- Increase investments in operation and maintenance of water and sanitation infrastructure
- Encourage private sector and civil society participation in water and sanitation services
- Enhancing partnership with stakeholders in planning, design and implementation of water and secure water supply installations
- Encourage the adoption and scaling up of sustainable operation and maintenance models
- Develop and implement guidelines for utilization of funds by community water projects
- Build capacity of community management and their staff
- Increase investments in community water projects
- Develop and maintain a data base on all community and other water vendors
- Work with other stakeholders to build capacity of the community water operators
- Establish and maintain water project sharing forum
- Strengthen and support community water projects
- Develop and implement guidelines/regulations for governance of community water projects
- Develop and maintain a data base for nonrevenue water
- Develop and implement guidelines to reduce nonrevenue water
- Develop capacity of county, WSPs and community water projects staff
- Develop and implement guidelines on water treatment
- Develop and implement appropriate technology in water and wastewater treatment solutions
- Create awareness on the need to treat water for domestic use
- Develop, review and implement rules and regulations governing water and sanitation services
- Create awareness on rules and regulations governing water and sanitation
- Develop and implement guidelines to regulate private exhauster operators
- Regulate water vendors to ensure quality and guard against exploitation of consumers
- Encourage public, private and civil society partnerships in research and development
- Adopt green energy solutions to support cost effective water and sanitation service delivery
6.0. Sanitation and Hygiene

6.1. Situation context for sanitation and hygiene

6.1.1. Urban Sanitation and sewerage services
Kiambu County has a conventional sewerage system, constructed as early as 1974 (for example the Waste Water Treatment Works (WWTW) for Kiambu town which has a design capacity of treating only 2,200 m³/day. The WWTW was not fully constructed and it is currently overloaded. The sewerage network and WWTW is not able to meet the existing demand thus the Water Service Provider (WSP) Kiambu Water and Sewerage Company (KIWASCO) is no longer connecting consumers to the sewerage network). Most of the developing areas within the county are not served by the sewer system. The urban and peri-urban areas which are not served by the sewerage network use septic tanks as an alternative mode of sanitation.

Garbage disposal around the urban centres within the county of Kiambu covers a small percentage of waste/garbage collection as only 2.6 percent of the total population has facilities for waste disposal, about 0.7 percent of the total population uses private firms, 29.1 percent use garbage pits, 29.6 percent use farm gardens, 12.1 use public garbage heap and 25.9 percent opt to burn the waste/garbage. This has a negative effect on the environment and hence proper mechanisms for waste disposal need to be put in place to ensure the county remains clean. There is a proposal to construct a county landfill which will handle all solid waste from sub-counties which should be accompanied by modern incinerators to burn hazardous waste as well as waste that cannot be decomposed.

6.1.2. Current challenges on water sanitation and hygiene
- Presumed treatment of drinking water for safety
- Use of untreated water from contaminated water sources
- Unprotected water wells and springs
- Lack of running water hand washing and basic hygiene
- Lack of monitoring for the quality of the water that is being sold in the facility
- Poor drainage in open air markets and blocked drainage systems
- Pollution of water sources by the chemicals from the farms and industries
- Lack of adequate toilet facilities in schools and institutions and villages
- Inadequate Sewerage system that predisposes to construction of inefficient septic tanks
- Contamination of water by the washing of vehicles at the rivers and different areas
- Lack of enough waste management facilities
- Inadequate planning for the appropriate infrastructure for water supply for sanitation purposes
- Inadequate supply of water due to the population explosion in small areas
- Capacity challenges in the technical staff to provide adequate services
- Failure to enforce the law and regulation
- Accessibility to the nearest reliable source of water
- Corruption
- Lack of public awareness for public participation
- Open Defaecation (OD) in some areas within Kiambu County
6.1.3. County Government initiatives to address the issues
- Construction of sewer line; Ruiru
- Markets improvement
- Demarcation of land use (Spatial plan)
- Participatory & Multi sectoral approach in policy making and implementation
- Formulation of policy that enhances sustainability
- Incentives to minimize pollutions
- Latrine coverage upscaling and health messaging

6.2. Policy Goal and Objectives

To realize universal access to improved sanitation, sewerage, drainage and waste management system

In order to realize this goal, the county will pursue the following policy objectives:

1. To improve county planning and implementation of programs to address sanitation and hygiene
2. To improve compliance of public health, water, sanitation and hygiene standards on the availability of adequate toilet coverage
3. Increase public investments towards the attainment of the county’s sanitation and hygiene goals
4. To support and strengthen the community led sanitation to stop open defecation
5. To develop a multi-sectoral approach in ensuring a fully functional drainage and sewerage system
6. To promote adoption of modern technologies in the collection, transportation, processing and disposal of garbage
7. To increase access and utilization of sewerage system
8. To promote the adoption of hand washing and basic hygiene in communities and schools
9. To enhance compliance to the public health standards in the disposal of medical waste
10. Vetting of water suppliers to ensure they follow standards

6.3. Policy Measures

The above policy objectives will be achieved through the following policy measures:

- Create awareness on public health, water, sanitation and hygiene (WASH) standards
- Intensify public health inspections for toilets coverage and hygiene facilities
- Implementation of Community Led Total Sanitation (CLTS)
- Enforce compliance on meeting the standards
- Create community awareness on establishing open Defecation Free Zones
- Create political goodwill on eliminating open defecation
- Support the implementation of community led total sanitation initiatives
- Engage relevant line departments to achieve a multi-sectoral approach
- Establish a technical working group
- Promote public, private and civil society partnerships in the county WASH initiatives
• Formation of Inter Agency Coordinating Committees and stakeholders for WASH initiatives
• Invest in appropriate technologies on collection trucks and other related equipment
• Promote the construction of modern incinerators for all solid waste
• Promote separation of waste sources
• Create public awareness on the importance of connecting to sewer system
• Enforce relevant laws to ensure compliance of building standards
• Promote appropriate onsite community sanitation system
• Advocate for construction and maintenance of hand washing facilities
• Sensitize the public on the importance of hand washing and basic hygiene
• Enforce compliance of having hand washing facilities in the relevant institutions
• Enforce the WASH regulation of having toilets in all public facilities such as supermarkets, banks etc
• Create awareness to the community on safe handling of medical waste
• Training of all health workers both public and private on infection prevention control
• Promote the availability of all the necessary equipment and resources to implementing infection control policy
• Enforce compliance of all measures identified in medical waste disposal
7.0. Water for Agriculture, Irrigation and Fisheries

7.1. Situation context for Agriculture and Irrigation

7.1.1. Agriculture

Agriculture is the predominant economic activity in the county and contributes 17.4 per cent of the county’s population income. It is the leading sub sector in terms of employment, food security, income earnings and overall contribution to the socio-economic wellbeing of the citizens. It is also a major source of employment. Coffee and tea are the main cash crops in the county. The main food crops include maize, beans, pineapples and irish potatoes. They are mainly grown in small scale in the upper highlands of Limuru, Kikuyu, Gatundu North and South Constituencies. With population explosion at the county, the average farm size 0.36Ha and 69.5Ha under small scale farming and large scale farming respectively. The intensification of agriculture has increased demand on water resources. Most of the land under coffee, which is neighboring Nairobi and other urban areas, has been converted into commercial centers and residential area, with multistory buildings and homes to cater for expanding population and as an alternative income for the land owners.

The county is promoting agribusiness initiatives through greenhouses support to with objective of increasing production of horticultural crops and increase income for famers.

7.1.2. Irrigation

The county irrigation objective is to increase food production in the County throughout the year. This will be achieved through irrigation infrastructure development and construction of large water harvesting structures. By end of 2017, the county government targets to connect 1,200 farmers to irrigated agriculture, through construction of four water pans, with goal achieving food secure and incomes.

7.1.3. Livestock

Kiambu County is known for its livestock production especially dairy farming. There is need therefore to ensure adequate animal feeds production. According to 2009 Population and Housing Census, the numbers of livestock in the county were as follows: 230,294 cattle, 120,056 Sheep, and 89,817 goats. In addition, there were 2,600,837 poultry, 46,493 pigs, 13,662 donkeys and 127 camels. In the year 2010, the county produced 267.5 million Kgs of milk valued at Kshs. 5.0 billion; and 36.2 million Kgs of beef valued at Kshs. 6.5 billion. Production of mutton was at 106,686 Kgs valued at Kshs. 42.7 million. Further, the county recorded production of 266.9 million Kgs of eggs, valued at Kshs. 699.2 million; poultry meat produced was 76.2 million Kgs, valued at Kshs. 142.9 million, honey produced was 134,332 Kgs valued at Kshs. 67.2 million and 1.8 million Kgs of pork valued at Kshs. 631.1 million. The growth in this sub-sector has been encouraged by a ready urban market in Thika, Ruiru, Kiambu and Nairobi and the availability of local food processing factories such as Farmers Choice Ltd, Kenchic Co. Ltd, Brookside Dairies, Githunguri Dairies, Ndumberi Dairies, Limuru Milk and Palmside Dairies, among others. There are no ranches within the county.

7.1.4. Fisheries

The county government of Kiambu is promoting fish farming with an objective of improving nutritional status of the citizens and increase income of the farmers. Currently, the county has

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410,106m² of pond area. The county is targeting to support a further 300 farmers and 200 youth members through construction of 48 fish ponds, stocked with tilapia and catfish fingerlings.

Table 10: Current and forecast water demand for agriculture, irrigation and fisheries

<table>
<thead>
<tr>
<th></th>
<th>Current</th>
<th>Target</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigation (acres)</td>
<td>8,000</td>
<td>24,000</td>
<td>555,135&lt;br&gt;Existing: Githoito, Mbariki; etc.; Proposed: Rwabura, Kamwamba, Ndula magogoni project etc.</td>
</tr>
<tr>
<td>Livestock (cows)</td>
<td>355,400</td>
<td>535,400</td>
<td>23,720</td>
</tr>
<tr>
<td>Fisheries (pond area)</td>
<td>410,106m²</td>
<td>1,649</td>
<td>-&lt;br&gt;Considering evaporation rate of 4.0 mm/day</td>
</tr>
<tr>
<td>Agriculture (farmers)</td>
<td>252,000</td>
<td>25,200</td>
<td>100L/farm/day, Other farm needs except for livestock and irrigation</td>
</tr>
<tr>
<td>TOTAL</td>
<td>229,664</td>
<td>605,704</td>
<td></td>
</tr>
</tbody>
</table>

From the above table, the current unmet water demand for agriculture, irrigation, livestock and fisheries stands at 376,040m³/day.

The agriculture, irrigation and fisheries sector presents a great opportunity for private public partnerships engagements in promotion of water stewardship through IWRM. The county government of Kiambu will provide legal and institutional framework for private sector participation and stakeholder engagement in the sector.

7.2. Key Issues and Challenges to Water for Agriculture, Irrigation and Fisheries

- **Small Land Sizes**

Population pressure in the county has led to sub-division of land to small un-economical units (average of 0.36 Ha) and this, coupled with poor soil fertility, has led to low production. The small land sizes do not produce sufficient food to feed the population of the county. This therefore calls for intensive agricultural practices as opposed to extensive practices. Thus, there is need to intensify training of farmers on modern farming techniques to enable them produce sufficient food and cash crops with the limited space. Farmers also need to diversify food production especially in the marginal areas of the county where rainfall is irregular by planting drought resistant and early maturing food crops.

- **Changing land use types**

Most of the productive land in the county is changing to urban, peri urban and residential /housing estates which are perceived to be more rewarding than farming.

Where opportunities for water harvesting arise, the county faces challenge of landowner’s refusal to provide wayleave without compensation even where they are part of the beneficiaries. Additional, there is not sufficient land to construct huge water harvesting structures, such as dams and water pans. The sector is closely working with the Kenya Forest Service where possible to acquire land to water harvesting.

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Funding gaps/challenges
Agriculture and irrigation infrastructure are high and cost intensive, multiyear investments. In many instances, irrigation projects require funding 3 to 4 years funding to completion, which may not be sufficient from the county budget alone.

Additionally, irrigation projects require high capital investments and skilled personnel that sometimes may be lacking within the county. The process of procuring these services may also delay the project.

Climate change
The effects of climate change have negatively affected agricultural production systems within the county. Majority of small scale farmers who solely rely on rain fed agriculture are the hardest hit, with recurrent droughts and floods, which cause huge losses to their crops, livestock and livestock products.

7.3. Current County Government Initiatives to Improve Water Supply for Agriculture, Irrigation and Fisheries

- Working with individual farmers and farmer groups to construct water pans and irrigation systems, and linking them to markets through creating workable PPPs models.
- Design and construction of efficient irrigation systems through use of appropriate technology
- Training of farmers on efficient utilization of the water in irrigation
- Training farmers on soil and water conservation
- Promotion of climate smart agriculture by supporting in the use of drip irrigation systems and green house that have high water use efficiency
- Promotion of drought tolerance crops and livestock
- Promotion of small livestock framing, as bees, poultry, fish, and silk farming which utilizes minimal water
- Promotion and support to water harvesting–from roof catchment and surface runoff

7.4. Policy Goal, Objectives and Measures

To ensure availability of water for irrigation and other agricultural purposes

In order to realize this goal, the county will pursue the following policy objectives:

- To increase investments in development and maintenance of irrigation facilities
- To build capacity among staff on low cost and efficient irrigation and agricultural technologies
- To build capacity of farmers on water harvesting and storage technologies
- To increase awareness among farmers on soil and water conservation
- To build capacity of farmers to adopt low cost and efficient agricultural and irrigation technologies

7.5. Policy Measures

- Build more storage facilities
- Strengthen data base on irrigation projects/initiatives
- Prioritize agriculture and irrigation in the county budget allocation
- Set up irrigation development fund to finance small scale irrigation schemes
- Promote partnership with the Non State Actors
- Increase knowledge and skills among staff on low cost and efficient agricultural and irrigation technologies
- Promote partnership and linkages with private sector, research and learning institutions and foreign agencies
- Promote best practices in water harvesting and storage

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- Increase awareness on water harvesting and storage technology
- Promote efficient low cost water harvesting and storage technologies
- Promote collaboration with other stakeholders
- Enhance riparian/riverbank protection
- Promote agro forestry
- Promote development of soil conservation structures
- Support access to agricultural and irrigation technologies
- Promote partnership with Non State Actors
- Increase knowledge and skills among farmers
8.0. Water for Industry, Trade and Social Development

8.1. Situation context for Industry, Trade and Social Development

8.1.1. Industry and trade

The county is well endowed with industries mostly located in Thika and Ruiru Constituencies. Thika Town constituency has several industries namely Bidco Oil Industries, Thika Motor Vehicle dealers, Thika Pharmaceutical Manufacturers Limited, Devki Steel Mills, Broadway Bakeries, Kenblest Industry, Kel Chemicals, Thika Rubber Industries Limited, Macadamia Nuts, Campwell Industry and Kenya Tanning Extracts Limited. In Ruiru constituency, the major industries include Clay Works as well as Spinners and Spinners. The Bata Shoe Factory which is the country's major producer of leather products is located in Limuru constituency. These industries act as a major source of employment and market outlet for agricultural and non-agricultural products both for domestic use and export. The agro processing includes Farmers’ Choice Ltd, Kenchic Co. Ltd, Brookside Dairies, Githunguri Dairies, Ndumberi Dairies, Limuru Milk and Palmside Dairies, among others.

In addition, the county has a total of 116 markets with Gatundu South and Lari sub-counties having the largest number of markets at 18 and 15 respectively. Other markets in the county include Githunguri (12), Juja (11), Kimbui (10), Ruiru (4), Limuru (11), Kikuyu (6), Kabete (6), Gatundu North (8), Kiambara (7) and Thika (8). (Source: County Department of Trade). There are also a number of urban centres with the largest being Thika Town which is one of the largest industrial towns in the country. Other urban centres include Kiambu and Karuri in Kiambaa constituency, Kikuyu in Kabete constituency, Limuru in Limuru Constituency, Gatundu in Gatundu South Constituency and Ruiru in Juja Constituency.

8.1.2. Education Institutions

There are 1,225 primary schools in Kiambu County out of which 576 are public and 349 are private. The total number of primary school teachers is 21,090 and the teacher to pupil ratio is 1:38. The total enrolment rate stands at 295,409 pupils comprising of 115,375 males and 113,910 females. The gross enrolment rate stands at 109.6 percent, while the net enrolment rate is 99.7 percent. This could be attributed to the introduction of Free Primary Education programme. Infrastructure in schools has also improved through devolved funds e.g. Constituency Development Fund (CDF) and Local Authority Transfer Fund (LATF). However, the county still needs to invest in the provision of additional education facilities because of the increasing number of school going population. In addition, there are 303 secondary schools consisting of 227 public and 76 private schools. The total enrolment rate is 89,065 out of which 44,777 are males and 44,288 are females. (Source: CIDP)

8.1.3. Health Institutions

There are a total of 364 health facilities spread across the county. Under the public facilities, the county has one level-five hospital namely Thika District Hospital, three level-4 in Gatundu South, Kiambaa and Kikuyu Constituencies, four level-three in Gatundu North, Juja, Kiambaa and Limuru Constituencies. There are 20 level-two (Health Centres) and 54 level-ones also known as dispensaries which are well distributed within the county. The rest of the facilities are private with 17 Mission Hospitals, five nursing homes, 36 dispensaries and 169 private clinics. All these institutions have huge water demands that the county will need to meet in a reliable and affordable way.
8.2. Strategic Policy Goal and Objectives
To provide adequate and quality water and sanitation services to all public health and education institutions, industries and trading centres in the County.

In order to realize this goal, the county will pursue the following policy objectives;
- Improve the provision of adequate, affordable and quality water supplies for industry and trade to support the county economy.
- Develop reliable water and sewerage infrastructure for trade, tourism and industry both in rural and urban areas.
- Strengthen the involvement of trade, tourism and industry stakeholders in decision making on water service delivery in the county.
- Promote the utilization of efficient modern technologies in water use for trade, tourism and industry.
- To improve hygiene practices among school children, their families and communities
- To improve water, sanitation and hygiene facilities for better health and wellbeing for school children.

8.3. Policy Measures
- Strengthen the provision of safe water and sanitation services in public institutions especially schools and health facilities
- Improve and maintain infrastructure for proper waste management in public facilities
- Influence communities to participate in planning, construction, use and maintenance of user friendly water, sanitation and hygiene facilities for schools and communities
- Increase safe water storage in schools and health centres
- Invest in development of new and upgrading of existing infrastructure to meet water demands for trade and tourism and industry.
- Develop and ensure adherence to regulations that prohibit water resources from being wasted
- Encourage water recycling, reuse and treatment of wastewater for industrial processes wherever possible
- Allocate resources for awareness programs that target workers and employees on efficient water use
- Develop and implement water efficiency standards for hotels
- Develop and implement incentives to encourage low water consumption
- Fast track the provision of clean and reliable water to areas of existing and high potential for industrial development in the county.
- Provide preferential water tariffs for industrial consumers in key industries
- Promote the Public-Private-Partnerships in provision of water and waste management systems, including water harvesting, storage and recycling;
- Provide incentives for construction and fabrication of effluent treatment plants and solid waste management facilities in industrial areas.
9.0. Water Governance

9.1. Situation context for Water Governance

9.1.1. Situation Analysis
In Kiambu County, water is limited both in terms of quality and quantity. According to the Society International Development (SID) inequality report of 2013, improved sources of water in Kiambu comprise protected spring, protected well, borehole, piped into dwelling, piped and rain water collection while unimproved sources include pond, dam, lake, stream/river, unprotected spring, unprotected well, water vendors and others.

In the County, 75% of residents use improved sources of water, while the rest rely on unimproved sources. Use of improved sources is higher in male headed households is at 76% as compared with female headed households at 73%. Thika Town constituency has the highest share of residents using improved sources of water at 87%. That is 25 percentage points above Gatundu South constituency, which has the lowest share using improved sources of water. Thika Town constituency is 12 percentage points above the county average. Use of improved sources of water is universal in Kahawa Sukari ward. That is three times Ngoliba ward, which has the lowest.

In terms of governance of the sector, the institutions which manage water resources are largely split between water resources and waters services even though the process is much more complex than this. The establishment of all of the necessary elements includes a set of many multiple functions which are necessarily shared between the county and national governments. In summary, the following key institutions are involved in the county’s water sector:

Table 11: Institutional Framework

<table>
<thead>
<tr>
<th>Sector</th>
<th>Name of institution/platform</th>
<th>Current roles and functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Resource Management</td>
<td>Water resource management authority (WRMA)</td>
<td>• Management and regulation e.g. to avoid&lt;br&gt;• over abstraction upstream&lt;br&gt;• Issuance of permits&lt;br&gt;• Capacity building of WRUAS</td>
</tr>
<tr>
<td></td>
<td>Water Resources User Association (WRUA)</td>
<td>• Protection of catchment areas&lt;br&gt;• Capacity building of water users&lt;br&gt;• Provision of water and sewerage in rural areas&lt;br&gt;• Management and maintenance of water and sewerage systems in rural area&lt;br&gt;• Sensitization and awareness to users</td>
</tr>
<tr>
<td>Role/Activity</td>
<td>Stakeholders</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Water Services Provision</td>
<td>South Water and Sanitation Company, Karimenu Water and Sanitation Company, Thika Water and Sewerage Company Limited, Civil society organizations e.g. KENVO, Athi Water Services Board, County Department of Water</td>
<td></td>
</tr>
<tr>
<td>Community Empowerment</td>
<td>• Water services provision</td>
<td></td>
</tr>
<tr>
<td>• Community empowerment</td>
<td>• Community empowerment</td>
<td></td>
</tr>
<tr>
<td>Bulk Water Supply</td>
<td>• Bulk water supply</td>
<td></td>
</tr>
<tr>
<td>Financing of Infrastructure &amp; Maintenance</td>
<td>• Financing of infrastructure &amp; maintenance</td>
<td></td>
</tr>
<tr>
<td>Legislation</td>
<td>• Legislation</td>
<td></td>
</tr>
<tr>
<td>Registration</td>
<td>• Registration</td>
<td></td>
</tr>
<tr>
<td>Construction of Storm Water Infrastructure</td>
<td>• Construction of storm water infrastructure</td>
<td></td>
</tr>
<tr>
<td>Approval of Building Plans</td>
<td>• Approval of building plans</td>
<td></td>
</tr>
<tr>
<td>Storm Water Management</td>
<td>• County Department of Roads</td>
<td></td>
</tr>
<tr>
<td>• Department of Urban Planning and Housing</td>
<td>• Department of Urban Planning and Housing</td>
<td></td>
</tr>
<tr>
<td>Cross Sectoral Platforms</td>
<td>CSG</td>
<td></td>
</tr>
<tr>
<td>Planning and Coordination of Stakeholders</td>
<td>• Planning and coordination stakeholders; identification tasks; forum for resource mobilisation; information sharing; technical working groups, regulation, supervision and monitoring, internal audits</td>
<td></td>
</tr>
<tr>
<td>• Coordination &amp; Planning</td>
<td>• Coordination &amp; planning; setting priorities; CIDP; resource mobilization; (co)financing; regulations; capacity building of partners; supervision; M&amp;E; internal audits</td>
<td></td>
</tr>
<tr>
<td>• Setting Priorities</td>
<td>• Setting Priorities</td>
<td></td>
</tr>
<tr>
<td>• CIDP</td>
<td>• CIDP</td>
<td></td>
</tr>
<tr>
<td>• Resource Mobilization</td>
<td>• Resource mobilization</td>
<td></td>
</tr>
<tr>
<td>• Capacity Building of Partners</td>
<td>• Capacity building of partners</td>
<td></td>
</tr>
<tr>
<td>• Supervision</td>
<td>• Supervision</td>
<td></td>
</tr>
<tr>
<td>• M&amp;E</td>
<td>• M&amp;E</td>
<td></td>
</tr>
<tr>
<td>• Internal Audits</td>
<td>• Internal Audits</td>
<td></td>
</tr>
<tr>
<td>Financing</td>
<td>Kiambu County Government</td>
<td></td>
</tr>
<tr>
<td>• Policy Development and Oversight</td>
<td>• Policy development and oversight</td>
<td></td>
</tr>
<tr>
<td>• Coordination &amp; Planning</td>
<td>• Coordination &amp; planning; setting priorities;</td>
<td></td>
</tr>
<tr>
<td>• Setting Priorities</td>
<td>• Setting Priorities</td>
<td></td>
</tr>
<tr>
<td>• CIDP</td>
<td>• CIDP</td>
<td></td>
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<tr>
<td>• Resource Mobilization</td>
<td>• Resource mobilization</td>
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<tr>
<td>• Capacity Building of Partners</td>
<td>• Capacity building of partners</td>
<td></td>
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<tr>
<td>• Supervision</td>
<td>• Supervision</td>
<td></td>
</tr>
<tr>
<td>• M&amp;E</td>
<td>• M&amp;E</td>
<td></td>
</tr>
<tr>
<td>• Internal Audits</td>
<td>• Internal Audits</td>
<td></td>
</tr>
<tr>
<td>• Contingency Planning and Interventions</td>
<td>• Contingency planning and interventions</td>
<td></td>
</tr>
<tr>
<td>Financing</td>
<td>CBO’s / Donors / Private individuals / Private sector</td>
<td></td>
</tr>
<tr>
<td>• Resource Mobilization</td>
<td>• Resource mobilization</td>
<td></td>
</tr>
<tr>
<td>• Capacity Building of Partners</td>
<td>• Capacity building of partners</td>
<td></td>
</tr>
<tr>
<td>• Supervision</td>
<td>• Supervision</td>
<td></td>
</tr>
<tr>
<td>• M&amp;E</td>
<td>• M&amp;E</td>
<td></td>
</tr>
<tr>
<td>• Internal Audits</td>
<td>• Internal Audits</td>
<td></td>
</tr>
<tr>
<td>• Contingency Planning and Interventions</td>
<td>• Contingency planning and interventions</td>
<td></td>
</tr>
<tr>
<td>Capacity Building, Monitoring &amp; Evaluation &amp; Learning</td>
<td>CSG</td>
<td></td>
</tr>
<tr>
<td>• Information Sharing Among Stakeholders</td>
<td>• Information sharing among stakeholders</td>
<td></td>
</tr>
<tr>
<td>• Capacity Building of Students; Academic</td>
<td>• Capacity building of students; academic</td>
<td></td>
</tr>
<tr>
<td>• Research</td>
<td>• Research</td>
<td></td>
</tr>
<tr>
<td>WRMA</td>
<td>• Training of Water Resources Users</td>
<td></td>
</tr>
<tr>
<td>• Training of Water Resources Users</td>
<td>• Training of Water Resources Users</td>
<td></td>
</tr>
<tr>
<td>• Associations</td>
<td>• Associations</td>
<td></td>
</tr>
<tr>
<td>Athi Water Service Board</td>
<td>• Training water service providers</td>
<td></td>
</tr>
<tr>
<td>Kenya Meteorological Department</td>
<td>• Early warning</td>
<td></td>
</tr>
<tr>
<td>Kenya Food Security Steering Group</td>
<td>• Early warning</td>
<td></td>
</tr>
<tr>
<td>Controller and Auditor General</td>
<td>• Capacity building; resource mobilisation</td>
<td></td>
</tr>
</tbody>
</table>
9.1.2. Urban Water Supply

Currently, the county relies on 8 Water Service Providers namely Kikuyu, Limuru, Karuri, Kiambu, Githunguri, Ruiru, Thika, and Gatundu. In addition, numerous private water vendors supply water from their private boreholes while Self Help Water projects sign third party agreements with the respective WSPs. All these assist in minimizing water supply gaps; especially where WSPs are not able to reach. Besides the 8 WSPs, there is still no data available for the water projects and private water vendors. All water service providers have signed a performance contract agreement with agreed targets, and normally present quarterly reports to the County.

The current number of household connections from the WSPs stands at 127,775 but this could be more if data from community water projects was available. The water demand based on data from WSP is 244,778m³/day against a supply of 131,179m³/day; translating to 113,599m³/day unmet demand. In order to facilitate the effectiveness of the community owned water operators and private water vendors, legislation and supporting regulations will be enacted to regulate the water supply and sewerage services providing for the establishment of an effective department to regulate their services.

Private sector entities are particularly encouraged to participate in urban water supply and sewerage services delivery under a county-wide regulation and in line with national law. The private sector players will be promoted to fill in service and capacity gaps of the County WSP where performance is consistently lacking and also to promote competitiveness in Water service provision.

With regard to independent regulation of UWSS, the role of the County Government will be to prepare tools, such as monitoring of WASREB standards, managing the citizens feedback platform and complaints system as well resources mobilization to ensure sustainability of the WSPs while promoting autonomy in their governance. Specifically, the role of the WSPs will include the following:

- Operate, maintain and repair water and sewerage infrastructure.
- Provide water and sanitation services to consumers
- Extend water and sewerage coverage to new areas and customers.
- To own and manage water and sanitation related assets
- Collect water and waste revenues include waste water.
- Manage the discharge of septage from septic tanks into the sewerage network or wastewater treatment plants.
- Support and finance construction or management (such as emptying) of on-site sanitation facilities such as latrines or septic tanks in partnership with private sector partners.
- Manage solid waste.
- Provide services and facilities for primary separation and removal of solid wastes at household, community, commercial, industrial and public levels.
- Promote the principle of 3R’s of waste management (i.e. reduce, reuse, recycle)
9.1.3. Rural Water Supply

Sustainability of rural water supply and sanitation (RWSS) services requires that communities, CBOs and individual operators take the lead in developing their WSS facilities and be fully responsible for the O&M of their schemes. Within this framework, the local private sector will provide support to communities in planning, design, construction and supply of materials, equipment and spares. The County government will continue to provide the necessary technical and financial support where necessary as well as co-ordination and regulation of the RWSS development activities from the department of water. Community Owned Water Operators will particularly be encouraged to form WSPs in rural areas with guidelines from the national government and county government to ensure viability.

Each COWO will expected to adopt and abide by an effective organizational structure that is simple, transparent, efficient and accountable to the communities that make rural water supply and sustainable.

9.2. Knowledge Management, Monitoring and Evaluation

Water services cannot be properly managed by the County unless there is proper knowledge of where the resource is, in what quantity and quality, and how variable it is likely to be in the foreseeable future. Data from national government agencies such as WRMA, WASREB, NDMA and other institutions have some of this information yet currently, there are no proper mechanism under which the County government can access this information for planning, designing, operating and maintaining multipurpose water management and service delivery systems. At the same time, in the County level, an area that requires a lot of information and data support is in the management of the water facilities at the communal level especially with respect to the number of water sources, status of systems of management especially among water committee, facility ownership, capacity requirements, operational reliability of water sources etc. Even the water sector itself needs to regularly keep data and information to monitor sector performance, delivery performance of partners and related information for purposes of mutual accountability. However, there is currently no system in place to support the level of decision making decisions at the county level erratic and unreliable.

9.3. Financing

The 2015/2016 budget (Table 5) indicates that the water development programme receives the third lowest budget allocation with an allocation of KES 485 million with recurrent expenditures taking 42% and development expenditure taking 58% per cent of the budget. The overall sector allocation is expected to rise by another KES 100M over the next three years but the sector consistently remain in bottom three sectors. Overall however, water and environment take up just 6% of the total budget allocation and this is further complicated by the department’s low budget absorption.
Table 12: Budget Allocation for the Water Sector

<table>
<thead>
<tr>
<th></th>
<th>F/Y 14/15</th>
<th>15/16</th>
<th>16/17</th>
<th>17/18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water, Environment and Natural Resources</td>
<td>482,063,028</td>
<td>485,188,192</td>
<td>533,707,011</td>
<td>587,077,712</td>
</tr>
</tbody>
</table>

Table 13: Expenditures for the Water Sector

<table>
<thead>
<tr>
<th></th>
<th>F/Y 15/16</th>
<th>16/17</th>
<th>17/18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrent expenditure for the water sector</td>
<td>200,563,028</td>
<td>202,606,688</td>
<td>214,763,089</td>
</tr>
<tr>
<td>Development expenditure for the water sector</td>
<td>281,500,000</td>
<td>282,581,504</td>
<td>299,536,394</td>
</tr>
</tbody>
</table>

Table 14: Water Sector budget allocation with respect to other sectors

<table>
<thead>
<tr>
<th></th>
<th>F/Y 15/16</th>
<th>16/17</th>
<th>17/18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water, Environment and Natural Resources</td>
<td>485,188,192</td>
<td>533,707,011</td>
<td>587,077,712</td>
</tr>
<tr>
<td>Finance and Economic Planning</td>
<td>1,458,000,000</td>
<td>1,455,000,000</td>
<td>1,600,000,000</td>
</tr>
<tr>
<td>Trade, Industry, Tourism and Cooperatives Department</td>
<td>394,493,586</td>
<td>397,759,699</td>
<td>437,535,668</td>
</tr>
<tr>
<td>Agriculture, Fisheries and Livestock Department</td>
<td>637,609,665</td>
<td>641,726,664</td>
<td>705,899,331</td>
</tr>
<tr>
<td>Youth, Sports and Communications Department</td>
<td>516,047,760</td>
<td>517,728,320</td>
<td>569,501,152</td>
</tr>
<tr>
<td>Roads, Transport, Public Works and Utilities</td>
<td>1,331,000,000</td>
<td>1,333,000,000</td>
<td>1,400,000,000</td>
</tr>
<tr>
<td>Lands, Physical Planning &amp; Housing</td>
<td>316,354,748</td>
<td>317,536,156</td>
<td>349,289,772</td>
</tr>
<tr>
<td>Education, Culture and Social services</td>
<td>901,130,486</td>
<td>901,441,495</td>
<td>991,585,645</td>
</tr>
<tr>
<td>Administration and Public Service</td>
<td>694,958,328</td>
<td>696,649,401</td>
<td>766,314,341</td>
</tr>
<tr>
<td>Health Services</td>
<td>3,800,000,000</td>
<td>3,900,000,000</td>
<td>4,300,000,000</td>
</tr>
<tr>
<td>County Public Service Board</td>
<td>62,488,000</td>
<td>62,523,664</td>
<td>68,776,031</td>
</tr>
<tr>
<td>County Executive</td>
<td>389,512,000</td>
<td>388,756,115</td>
<td>427,631,726</td>
</tr>
<tr>
<td>County Assembly</td>
<td>872,843,954</td>
<td>837,391,184</td>
<td>921,130,000</td>
</tr>
</tbody>
</table>

In summary, some of the key issues and challenges in financing include:
- Low Water budget allocation (at only 6%) of the total budgetary allocation
- Sector budget allocation depends on the defence and argument presented to funding office. Budget presentation and defense is the most important aspect for allocation. Prioritize well.
- Water department had lowest budgetary absorption of 73.4% and these included the following:
  - Delays in payments of contractors
  - Difficult projects that requires long processes to implement
  - Lack of adherence to the 30% budget development rule
  - Poor budgeting – no allocation for some critical items e.g. capacity building and human element
9.4. Strategic Policy Goal and Objectives

*Strengthen the capacity of the department and county stakeholders to deliver on their mandates in the sector.*

In order to realize this goal, the county will pursue the following policy objectives;

- To mobilize additional resources for the water sector
- To improve sector planning coordination and implementation
- Strengthen and enforcement of our laws and regulations
- Streamlining of the institutions and proper oversight framework
- Develop effective human resources for the water sector

9.5. Policy Measures

- Ensure and ring fence water sector revenues
- Promote bottom-up budget preparation
- Lobbying for more budgetary allocation in water resources management
- Institutionalize water fund
- Create a water sector fund
- Set up irrigation development fund to finance small scale irrigation schemes
- Develop and implement water resource mobilization strategy
- Create a joint planning platform and establish a coordinating mechanism
- Well defined responsibilities and functions
- Public participation and civic education
- Promote multi-sector approach in implementation
- Strengthen intergovernmental relations
- Develop and implement a long term investment master Plan
- Review the county water act
- Develop and implement water sector rules and regulations
- Build capacity of enforcement agents on rules and regulations
- Develop and implement the departmental strategic Plan
- Establish an effective public feedback and complaints/conflict resolution framework
- Promote an effective conflict resolution mechanism
- Streamlining of the institutions and proper oversight framework
- Define a proper chain of command
- Formation and support wags and WRUAs for service delivery oversight
- Rationalize staff compliment and competence (staff audits)
- Develop and implement capacity building programme (staff training)
- Recruit, hire, re-deploy