

## Underspending on irrigation in Kenya

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From the World Bank’s BOOST data, we have identified significant underspending in the agriculture sector as a concern across the globe, particularly in irrigation. In a series of briefs, we explore why spending fell short of budgeted allocations in five countries and how this affected outcomes. Here we examine irrigation spending in **Kenya** over four years, from 2013/14 to 2016/17.

### Extent and nature of deviations in the irrigation budget

Data from both BOOST and national budget documents – i.e., working group reports, available [here](#) – suggest large underspending for irrigation over all four years, although there are some differences.<sup>1</sup>

**Table 1: Spending on irrigation budget for national government from 2013/14 to 2016/17, (in Ksh million, unless otherwise specified)**

Year	Sector report			BOOST/Appropriations <sup>2</sup>		
	Revised budget <sup>1</sup>	Expenditure	Deviation	Approved budget	Expenditure	Deviation
2013/14	12,092	9,370	-22.5%	15,007	11,211	-25.3%
2014/15	15,896	9,090	-42.8%	11,702	9,069	-22.5%
2015/16	13,385	8,172	-38.9%	16,547	7,984	-51.8%
2016/17	9,093	6,898	-24.1%	13,159	6,558	-50.2%

<sup>1</sup> Called “approved budget” in the sector report, but the amounts for 2015/16 for example match supplementary estimates (not approved estimates) in the “2015/16 Supplementary Estimates II – Programme Based Budget” available [here](#). The amounts for other years also do not match the PBBs or the approved budgets; they match the “final budget” in BOOST instead.

<sup>2</sup> Called “initial budget (printed estimates)” and the amounts are equivalent to the PBBs for programs and to the Appropriations Act for the MDAs; we assume that BOOST and appropriations have the same budget for programs, as well.

Source: BOOST and Kenya budget documents

Note that we use the *original* approved budgets from BOOST, while sector reports use revised, supplementary estimates (see the footnotes above for Table 1). Looking only at national government ministries, departments and agencies (MDAs), data in the Appropriation Acts and PBBs match initial budgeted amounts in BOOST. Data for actual spending, provided in the [year-end reports](#) (YERs) and sector reports, still do not. For example, BOOST shows that the entire State Department for Agriculture spent Ksh. 5.7 billion in recurrent and 12.6 billion in development expenditure in 2015/16 – but the 2015/16 YER presents Ksh. 5.9 and 13.7 billion as the respective figures. Total expenditures for irrigation in the sector report are also slightly higher than in BOOST. Actual expenditure on recurrent and capital grants in 2014/15 were among the few exceptions for which the two sources did align (Exhibit 1).

<sup>1</sup> We examine the sub-programs “Development of Irrigation and Drainage Infrastructure” and “Promotion of Irrigation and Drainage Development and Management”. Of note: in 2015/16, irrigation projects under the State Department for Agriculture were moved to the State Department for Irrigation, which is under the Ministry of Environment, and the sub-program was renamed. The program it falls under was also changed, from “Irrigation and Drainage Infrastructure” to “Environment and Natural Resources Management and Protection” in 2016/17.

## Exhibit 1: Irrigation budget (national MDAs only) by economic classification, 2014/14 – 2016/17

	Initial budget (appropriated)			Final budget (revised/supplementary)			Final expenditure (total payment comm)		
	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17
<b>0 Recurrent Expenditure</b>	<b>649</b>	<b>839</b>	<b>886</b>	<b>649</b>	<b>868</b>	<b>832</b>	<b>248</b>	<b>371</b>	<b>424</b>
21 Compensation Of Employees	117	125	99	117	188	65	116	46	67
22 Use Of Goods And Services	5	5	77	5	18	58	5	16	47
26 Grants	526	708	708	526	662	708	126	309	308
31 Acquisition Of Non- Financial Assets	1	0	2	1	1	2	1	1	2
<b>1 Development Expenditure</b>	<b>11,053</b>	<b>15,708</b>	<b>12,273</b>	<b>15,248</b>	<b>19,918</b>	<b>8,261</b>	<b>8,821</b>	<b>7,613</b>	<b>6,134</b>
31 Acquisition Of Non- Financial Assets	4,323	5,985	846	4,588	5,450	663	2,584	1,180	272
26 Grants	6,730	9,723	11,427	10,660	14,467	7,598	6,238	6,433	5,863
<b>Grand Total</b>	<b>11,702</b>	<b>16,547</b>	<b>13,159</b>	<b>15,897</b>	<b>20,785</b>	<b>9,093</b>	<b>9,069</b>	<b>7,984</b>	<b>6,558</b>

Irrigation Sub-Sector						
Economic Classification	APPROVED BUDGET			ACTUAL EXPENDITURE		
	2014/15	2015/16	2016/17	2014/15	2015/16	2016/17
<b>1014010 SP 4.1 Promotion of Irrigation and Drainage Development and Management.</b>						
<b>Current expenditure</b>	<b>648</b>	<b>448</b>	<b>833</b>	<b>246</b>	<b>448</b>	<b>795</b>
Compensation of Employees	117	125	65	116	125	76
Use of Goods and Services	5	15	58	4	15	41
Grants and other Transfers	526	308	708	126	308	678
Other Recurrent	-	-	2	-	-	-
<b>Capital expenditure</b>	<b>15,248</b>	<b>12,937</b>	<b>8,261</b>	<b>8,844</b>	<b>7,724</b>	<b>6,105</b>
Acquisition of Non Financial Assets	4,588	3,330	663	2,606	389	245
Capital Grants to Government Agencies	10,660	9,607	7,598	6,238	7,335	5,860
Other Development	-	-	-	-	-	-
<b>Gross Expenditure</b>	<b>15,896</b>	<b>13,385</b>	<b>9,094</b>	<b>9,090</b>	<b>8,172</b>	<b>6,900</b>

Note: The most notable discrepancy is in the supplementary budget (“final” in BOOST and “approved” in the sector report) for 2015/16. This is most likely due to the program restructuring which took place that year. Final budget for the newly established State Department for Irrigation in BOOST is equal to what is in the 2015/16 Supplementary Estimates I, while the sector report is based on the Supplementary Estimates II. Source: top table: BOOST; bottom table: sector report

Where is the underspending? Despite discrepancies in the figures (the source of which we are unable to identify), both BOOST and the sector reports suggest that underspending on capital projects under the National Irrigation Board (NIB) is the main driver of irrigation underspending overall. According to BOOST, acquisition of non-financial assets under NIB accounted for roughly 80% of the underspending in irrigation in 2013/14 and 2014/15. In 2015/16 and 2016/17, capital expenditure for individual projects implemented by NIB (grants and non-financial assets together) accounted for about 90% of underspending. Sector reports also suggest that capital grants to NIB on average accounted for 60% of the underspending in irrigation over 2013/14-2016/17.

### Linking budget execution and nonfinancial target performance

*For the irrigation sector as a whole*

PBBs and sector reports include some information regarding nonfinancial targets. The main targets relate to increases in irrigated land, for the proposed budget year and two additional years. However, reporting is not always consistent, either across the years or documents, and targets in the PBB can be different from those in the sector report. For example, Exhibit #2 compares the 2015/16 PBB and the Agriculture, Rural and Urban Development (ARUD) sector report.

## Exhibit 2: Part E from the 2015/16 PBB and Table 3.1.2 from the 2015/16 ARUD sector report

**Programme:** 0110000 P4: Irrigation and Drainage Infrastructure

**Outcome:** Increased agricultural production

**Sub Programme:** 0110010 SP 4.1 Promotion of Irrigation and Drainage Development and Management

Delivery Unit	Key Output (KO)	Key Performance Indicators (KPIs)	Targets 2015/2016	Targets 2016/2017	Targets 2017/2018
1161002900 Irrigation and Drainage Services	Irrigation support services	Acreege of irrigated land (acres.)	6,000	6,000	6,000
1161003000 National Irrigation Board	Irrigation support services	Acreege of irrigated land (acres.)	30,000	30,000	200,000 ( after construction of dam)

Programme	Delivery Unit	Key Outputs	Key Performance Indicators	Baseline 2014/15	Target 2015/16	Target 2016/17	Target 2017/18
Programme 3: Irrigation, Drainage and Mechanization Infrastructure							
Outcome: Increased agricultural production							
SP 3.1: Promotion of Irrigation and Drainage Development	Irrigation and Mechanization Directorate  National Irrigation Board	Area of irrigated land increased	No. of acres of land	12,100	63,000	71,000	70,000

The presentation of the targets in the two documents is different and difficult to compare. It is also not clear if the targets are incremental or cumulative – it could be that those in the PBBs are incremental, while those in the sector reports are cumulative. It is also possible that the government has revised the targets between the time of producing the sector report and publishing budget estimates, as sector reports are produced months before the PBBs. These may then be corrected subsequently. In fact, the 2017/18 report on the Environmental Protection, Water and Natural Resources (EPWNR) sector – where irrigation has been housed since 2015/16 – assigns 36,000 acres as the planned target for 2015/16 in its program performance review, which does align with the PBB figure (for the two delivery units in the table above).

However, we also find inconsistencies in achieved targets across sector reports. In its summary of the major achievements of 2015/16, the ARUD sector report highlights that the sector put 40,286 hectares under irrigation from July 2011 to June 2014. The following table on key indicators of sector performance uses a different unit, measuring the irrigated area in acres – and shows that 21,625; 24,693; and 42,785 acres were under irrigation over the years 2011/12, 2012/13 and 2013/14, respectively. Even if we assume that this estimate is cumulative, the increment from 2012/13 to 2013/14 is about 18,000 ha – still not equal to the 21,515 acres suggested in the 2016/17 ARUD report and the 2017/18 EPWNR report:

**Exhibit 3. Table 2.2 from the 2015/16 ARUD sector report, Table 3 from the 2016/17 ARUD sector report and Table 2.1 from the 2017/18 EPWNR sector report**

KEY PERFORMANCE INDICATORS		PERFORMANCE		
		2011/12	2012/13	2013/14
1.	Number of acres of land under irrigation	21,625	24,693	42,785

Programme	Key Outputs	Key Performance Indicators	Target			Achievement		
			2012/13	2013/14	2014/15	2012/13	2013/14	2014/15
<b>Programme 4: Irrigation, Drainage and Mechanization Infrastructure</b>								
<b>Outcome: Increased agricultural production</b>								
	National Expanded Irrigation Project-	Increased acreage under irrigation (acres)	0	20,000	24,000	.0	21,515	25,143

Programme:	Key Output	Key Performance indicator	Planned Target			Achieved Targets			Remarks
			2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	
<b>P 5: Irrigation and Drainage Infrastructure</b>									
<b>S P 5.1: Promotion of Irrigation and Drainage Development and Management</b>									
	Irrigation Support Services (Irrigation and Drainage Services).	Acreage of Irrigated Land (acres).	0	15,000	6,000	0	1,200	2,040	The targeted acreage was not achieved due to reduction in funding.
	Irrigation Support Services (National Irrigation Board).	Acreage of Irrigated Land (acres).	20,000	10,000	30,000	21,515	25,643	14,100	In the 2015/16 FY, the target was affected by budget cuts and delayed exchequer releases.

As shown above, irrigation as a sector appears to have surpassed its total acreage targets (summing the performance of the two delivery units) in 2013/14 and 2014/15, despite the underspending – although it should be noted that this is based solely on the 2017/18 EPWNR sector report, given concerns regarding consistency of nonfinancial data. The target acres, however, have not been achieved in 2015/16, with budget cuts and funding reductions provided as the reason. It is not clear whether these “funding reductions” refer to supplementary budget changes during the year. The data do show that irrigation funding was increased in the final budget in 2013/14 and 2014/15 but reduced in 2015/16.

**Table 2. Supplementary budgets for irrigation 2013/14-2016/17 (in Ksh million)**

	2013/14 <sup>1</sup>			2014/15			2015/16 <sup>2</sup>			2016/17 <sup>3</sup>	
	Budget	Supp1	Supp2	PBB	Supp1	Supp2	PBB	Supp1	Supp2	PBB	Sector Report
Recurrent	657	657	739	649	649	649	839	449	449	886	833
Capital	12,726	9,676	13,538	11,053	11,053	15,248	15,708	14,552	12,937	12,273	8,261
<b>Total</b>	<b>13,383</b>	<b>10,333</b>	<b>14,277</b>	<b>11,702</b>	<b>11,702</b>	<b>15,897</b>	<b>16,547</b>	<b>15,000</b>	<b>13,385</b>	<b>13,159</b>	<b>9,094</b>

<sup>1</sup> Looks only at NIB using administrative classification, as supplementary estimates are not available for programs.

<sup>2</sup> Includes irrigation expenditures under the State Department for Agriculture from PBB, under the State Department for Irrigation (0 for State Department for Agriculture) from Supplementary Estimates I, and under both from second Supplementary Estimates II. Again, note that data for 2015/16 is generally shaky due to restructuring and BOOST suggests boost in funding (see Exhibit 1).

<sup>3</sup> Uses “approved budget” in lieu of supplementary estimates, which are not available in the budget library.

Source: budget documents

Both ARUD and EPWNR sector reports also attribute their low execution rates overall to insufficient funding and delays with exchequer releases. Issues with exchequer releases have long been a challenge for Kenya’s infrastructure projects. The [2014 public expenditure review](#), for example, noted that: “Project implementation slows down because of insufficient exchequer releases of the approved budget allocations thus projects end up with long gestation periods with cost overruns and accumulated arrears,” undermining the efficiency of investments.<sup>2</sup>

#### *For selected projects*

Two tables in both the 2017/18 and 2018/19 sector reports provide information on the performance and execution of major projects in the irrigation sector. First, the table on “Analysis of Performance of Capital Projects” offers details about individual capital projects, including the date and cost of contracts as well as the completion stage and budget provisions for each year in the review period. Second, the table on “Programmes/ Sub-Programme, Outcome, outputs and Key Performance Indicator” breaks down the planned and achieved targets for the most recent year by key performance indicator (KPI) under each delivery unit.

It is also worth noting that Table 2.1 in the 2018/19 report, which is comparable to those shown in Exhibit 3, assesses sector performance by breaking down the total acre target by project and adds several new indicators for the irrigation program. This is another example where the presentation of information differs across budget documents.

It is difficult to make an association between spending performance and implementation of individual projects just from budget documents, largely due to the lack of detailed expenditure data. A simple comparison between the rate of execution from BOOST and rate of KPI achievement from the sector reports, however, does reveal *some* correlation (Table 3).

**Table 3: Execution and achievement rates for selected irrigation projects in 2015/16 and 2016/17**

Year and project	Share of budget (% of national MDA irrigation budget)	Share of underspending (project deviation as % of irrigation deviation)	Rate of execution (final expenditure as % of initial budget)	Rate of achievement (achieved acres as % of planned target)
2015/16 (note: only showing 3 largest projects due to data limitation)				
National expansion	30.2%	10.9%	81.3%	77.3% <sup>1</sup>
Galana Kulalu	21.2%	20.4%	50.0%	25.0% <sup>2</sup>
Mwea	13.3%	25.8%	0.0%	n/a <sup>3</sup>
2016/17 (note: total budget data in sector report for the projects shown was equal to or at least within +/-5% of BOOST data)				
Galana Kulalu	24.4%	22.1%	54.6%	50.0% <sup>4</sup>
Mwea	24.7%	30.2%	38.6%	0.0% <sup>5</sup>
National expansion <sup>6</sup>	16.8%	0.0%	100.0%	46.7%
Bura <sup>7</sup>	13.1%	17.0%	35.2%	See note
Small holder <sup>8</sup>	9.7%	19.1%	1.2%	0.0%
Community based	2.1%	0.0%	99.4%	90.6%
Rwabura <sup>9</sup>	0.2%	0.0%	100.0%	n/a

<sup>1</sup> 171% in the 2019/20 ARUD sector report (irrigation was recently shifted back to the ARUD sector).

<sup>2</sup> For the acre target only; also 25% achieved for the number of acres in model farm planted.

<sup>3</sup> 0% achieved for dam construction, which was the only KPI for 2015/16.

<sup>4</sup> 50% for the number of acres in model farm planted. Achieved increase in irrigated land was 33% of target according to the 2019/20 report.

<sup>5</sup> 0% achieved for dam construction and 100% for households settled.

<sup>2</sup> We did not find program level release data and cannot confirm that these issues are also affecting individual irrigation projects.

<sup>6</sup> Remarks explain that “there were many pending bills, and the funds were used to clear them” – also discussed in the text.

<sup>7</sup> Achieved acres are different in tables 2.1 and 3.1, each at 0 and 1,000 (0% and 100% of target). The 2018/19 report suggests 20% (5 of 25 km) for achieved canal construction, but the 2019/20 report shows 95% (20 of 21 km). Also note that the project was modified substantially, and execution rate was 83.5% compared the supplementary budget.

<sup>8</sup> The project was also modified substantially, but execution rate was still relatively low at 7.4% compared to the final budget.

<sup>9</sup> New project which began in July 2016; achieved 0 of 0 acres for irrigation and 0 of 20km for canal construction.

Source: BOOST and EPWNR sector reports

Among the three largest capital projects implemented by the State Department for Irrigation, the Galana Kulalu and Mwea projects stand out as the main drivers of underspending. The Galana project also shows relatively low rates of KPI achievement in terms of target acres, and the Mwea project in terms of canal construction.

The national expansion program is distinctive from the Galana and Mwea projects in that it actually comprises hundreds of smaller projects across the country. The initiative has fared relatively well in terms of budget credibility, with the highest execution in both years. It achieved almost 80% of the target acres (11,600 of 15,000) in 2015/16 but less than half (7,000 of also 15,000) in 2016/17.

The 2018/19 sector report suggests that target achievement was relatively low in 2016/17 because funds were used to clear pending bills, although it does not clarify what these pending bills were accumulated for. Generally, sector reports offer explanations for execution and achievement at the project level, but on a selective and arbitrary basis. For example, the 2017/18 report comments on the “slow implementation occasioned by interference by the community and delayed release of exchequer to meet the counterpart fund” for the Bura project but does not offer anything on the Galana project.

Earlier this year, it was [reported](#) that the government was “ditch[ing] Galana project for small ventures” under the national expansion program, after the contractor abandoned the site [contending](#) that NIB failed to approve and honor payments in a timely manner and that factors including the weather and “imprudent deferment of certain components in the original contract” slowed down implementation. NIB argued that the payment was not made, because the contractor had not made sufficient progress. The Auditor General [suggested](#) that the initial contract could have been designed better, highlighting the single sourcing and provisions that made the project susceptible to underperformance. This project exemplifies the complex, multifaceted nature of budget credibility challenges.

In June, NIB changed its position and [promised](#) to revive the project, taking over some activities. However, only Ksh. 10 million was allocated for Galana in the [2019/20 budget](#) – a big cut from the billions it has received over the previous years. The government also vowed to set aside Ksh. 1.8 billion to complete stalled irrigation projects in 2019/20, but budget deviations over the past years suggest that these funds may not be fully utilized.

### **Conclusion: A need for increased transparency**

BOOST and budget documents show that national government expenditure on irrigation tends to be underspent, compared to both approved and revised budgets. Underspending is especially heavy for large capital projects under NIB, such as the Galana project. These projects often have underperformed relative to their nonfinancial targets, which may be related to the lack of budget credibility.

However, readers should be aware of the various limitations with this research. In general, it is challenging to assess all irrigation-related projects administered by the Kenyan government as they are

scattered across the MDAs and may not be classified in the same way. To illustrate this challenge, in 2019/20, a number of MDAs ranging from Correctional Services to the State Department for Crop Production were responsible for some projects related to irrigation. We would need to look beyond the State Department of Irrigation to have a comprehensive idea of what the government is doing around the sector, but the classification systems tend to change frequently and somewhat arbitrarily. This brief also excludes county budgets on irrigation and there could be additional challenges at the county level that are not accounted for in our analysis.

In our investigation, data for 2015/16 was especially difficult to grasp given the inconsistencies across data sources. This is likely because the program was restructured and shifted from the Ministry of Agriculture to the Ministry of Environment that year, and it is possible that there are data concerns that we were not able to address. For example, Table 2 shows that actual spending on the Mwea project was zero according to BOOST. However, it is possible that the classification system for the sector changed and the disaggregated data was not available for execution. In addition, we rely on the most recent two years to analyze the impact of underspending on performance outcome at the project level, because we did not find enough details in the data for 2013/14 and 2014/15. Testing for a relationship between budget execution and project completion using more reliable data (for all 4 years examined in the brief) would provide us a better understanding of the implication of poor budget credibility on program performance.

It is also interesting that some irrigation projects get amended substantially through supplementary budgets (e.g., Bura and small holder programs in 2016/17 – see footnotes in Table 3), while others are not changed at all. Unfortunately, we are unable to find information about the reasons for these changes and whether targets are adjusted along with the budget. Better understanding of this issue may also help explain the difference between the targets presented in the PBBs and sector reports.

## **Acknowledgement**

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## **Documents consulted**

- BOOST database: <https://bit.ly/2MAV42L>
- Sector working group reports: <https://bit.ly/2ofAgFP>
- Budgets (program-based budgets, appropriations and supplementary estimates): <https://bit.ly/2p4BWCq>
- Year-end reports, retrieved from the Open Budget Survey budget document library
- News articles for updates on the Galana Kulalu project