

# A Historical Perspective of The Impact of Rice Policies and Strategies in Kenya

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**Abstract:** Agricultural policies in Kenya tend to influence agricultural related aspects such as resource allocation to agriculture, input and out price stability, budget allocation and investments in agriculture. Rice has always been considered in the blanket agricultural policies and strategies such as the earliest National Development Plans that were developed immediately after gaining independence. However, it is of recent that stand-alone rice-related policies and strategies have emerged. To understand the impacts of agricultural policies in Kenya on rice value chain, a review based on the already published literature from the colonial period to date was conducted. During the colonial period, government policies were favourable towards export crops such as tea, coffee, cotton and pyrethrum. Rice indirectly benefited from the general rehabilitation of infrastructure. During the post-independence era, the main goal of policies within Kenya were equitable distribution of income, transfer of land, smallholder development. It was marked with establishment of main rice irrigation schemes. In 2008, a stand-alone rice specific National Rice Development Strategy phase one was developed to drive the development within the rice value chain. The second phase runs from 2019 to 2030. Most of the targets have been achieved, however, productivity has still stagnated thus the reliance on importation to meet the domestic demand. Inclusion of rice farming communities in the development of rice-related strategies and interventions can generate greater ownership of rice interventions. Learning from the previous intervention and fast tracking the implementation of the plans and policies can better guide the attainment of the objectives.

**Keywords:** Agricultural policy, Colonial policy, Food security, Policy impacts, Rice-specific policy.

## I. INTRODUCTION

Previous studies indicate that rice production in Kenya was introduced in 1907 by the Europeans (Atera et al., 2018; MOA, 2008; Ndirangu & Oyange, 2019; Ngige, 2004; NRDS, 2020; Obura et al., 2017; Onyango, 2014). A study by Uma (2022), however, shows that rice production was introduced in Kenya in early 1800s. About 80% of Kenya's rice sector is dominated by irrigated rice (MOA, 2008). Production of rice is concentrated in Kirinyaga, Kisumu, Migori, Homa Bay, Siaya (Anyiko), and Taita Taveta regions (NRDS, 2020). Other than irrigation which is the most dominant method of farming, rainfed rice production is taking shape in Busia, Bungoma, Kakamega, Kwale, Kilifi, Meru, Isiolo, Migori, Baringo and Murang'a.

Rice in Kenya is produced by over 300,000 farmers who provide labour and also earn their livelihood from rice farming (Vishnu & Mukami, 2020). According to Dianga et

al. (2022), rice in Kenya is consumed as food while by-products such as hulls and rice straw are used as animal feeds, and substrate for growing mushrooms and husks used as cooking fuel. The steady increase in consumption compared to production is enormously stretching the demand to supply deficit.

Annual rice consumption in Kenya increases by 12% compared to 4% for wheat and 1% maize, which is the main staple food (MOA, 2008). According to KNBS (2019), rice production in Kenya stood at 150,000 Metric tonnes in 2018 (KNBS, 2019), 130,000 MT (Dianga *et al.*, 2022) and 180,890MT in 2019 and 2020 respectively (FAOSTAT, 2022). However, the per capita consumption of milled rice rose from 12.7 kg in 2016 to 20.6 kg in 2018 which increased rice consumption from 550,000 MT to 949,000 MT. This prompted importation of over 90% of rice for local consumption valued at Kshs 26 billion (NRDS, 2020). This implies that Kenya is a net importer of rice in East Africa. Moreover, the consumption of rice is still expected to increase to over 1,292,000 MT per year by 2030 (NRDS, 2020).

Policy and policy environment directly or indirectly influences agricultural sub sector. Agricultural policies in Kenya tend to involve government decisions that influence agricultural related aspects such as resource allocation to agriculture, input and out price stability, budget allocation and investments in agriculture (Alila & Atieno, 2006). Being the major earner of foreign exchange and major employer of the biggest Kenyan population, agricultural growth is seen as a booster of economic growth which results to overall reduction of poverty levels in Kenya (MoALF&I, 2019). According to Alila and Atieno (2006), increasing rural incomes and ensuring equitable distribution of income are the main objectives of agricultural strategies which are achieved through increasing agricultural growth.

The most important agricultural policy concern in Kenya is achieving food security. Others include increasing smallholder agricultural productivity, reducing reliance on rainfed agriculture and encouraging irrigated agriculture, ensuring environmental sustainability, promoting private sector led development, diversification into non-traditional agricultural commodities and promotion of value addition (Alila & Atieno, 2006).

Rice has been prioritised by the Kenyan government as a strategic and key income generating crop. This is evident in the existing government policies such as Vision 2030,

Agriculture Sectoral and Transformation and Growth Strategy and National Food Nutrition and Security Policy. An extra effort in developing the NRDS-2 was revised to guide the rice subsector from 2019 to 2030. Through the Big Four Agenda (2018-2022), government targets agriculture growth and transformation. This transformation is expected to contribute to 10% of economic growth in Kenya by 2030. In meeting this vision, there is need to increase production of rice, productivity, mechanization, technology development and adoption of new varieties. Notably, prioritising rice subsector can contribute towards the realisation of critical Big 4 agenda components such as improving food security and manufacturing sector and Vision 2030 that seeks to transform Kenya into an industrialised economy.

Generally, rice has always been considered in the blanket agricultural policies and strategies. Rice was prioritised in the earliest National Development Plans that were developed immediately after gaining independence. However, it is of recent that stand alone rice related policies and strategies have emerged. The most important ones include the National Rice Development Strategy-I (2008-2018) and the second phase of the National Rice Development Strategy –II (2020 – 2030). Thus, there is need to understand the impact of the previous blanket agricultural policies on rice value chain and the recent rice specific policies and strategies in Kenya.

## II. MATERIALS AND METHOD

The review based on the already published but scattered literature to document information capable of showing the rice related policies and their impacts from the colonial period to date. The stages followed during the review included: developing objectives and study questions; mining relevant data; comparing differences and similarities; triangulating the data; and putting together evidence and drawing conclusions. Published journal articles were accessed through databases such as: Elsevier, Google Scholar, Research Gate, Taylor and Francis, Sage, Springer and other international publishing companies. Other documents such as policy documents, national strategies and non-published information were accessed from government, organizational and ministerial websites and google searches. The literature that was reviewed focused on illuminating and providing evidence related to the historical perspectives of agricultural policies in Kenya and their impacts on rice value chain.

## III. RESULTS AND DISCUSSIONS

### 3.1 Agricultural policies during the colonial period.

The colonial period of Kenya was associated with narrow export crops such as tea, coffee, cotton and pyrethrum that received enormous policy support from the colonial government. Though rice was not individually targeted, it benefited from some of the policies that targeted general rehabilitation of infrastructure and access to improved agro-inputs. During the colonial period, policies were being made by the colonial government. Thus, government policies were favourable towards agriculture because the targeted large

scale agriculture was dominated the European farmers. It can also be attributed to the fact that during the colonial period, farmers made up the largest proportion of the representatives in parliament. Thus, agricultural policies were largely sympathetic and biased towards the interests of farmers (Alila & Atieno, 2006).

During the colonial period, a government policy making or marketing board prevailed. Its mandate was skewed towards enabling farmers to achieve higher incomes from their produce through higher prices. Farmers access to inputs during the colonial time was of paramount importance. To encourage production of cash crops, transport facilities mainly railways were established and extended to agricultural areas. Subsidised interest rates on government funds was available to the white farmers to boost their investment in agriculture. However, the subsidies did not include the smallholders most especially those producing non-export crops. It can also be attributed to the fact that they were economically and politically disorganised in the view of the colonial government (Alila & Atieno, 2006).

### 3.2 Agricultural policies between 1963 and 2008.

During the post-independence era, the main goal of policies within Kenya were equitable distribution of income, transfer of land, smallholder development and promotion and universal freedom. The first National Development Plan in Kenya stretched from 1966 – 1970 targeted industrialisation to reduce reliance on importation but also over reliance on agriculture. Tarrif protection, monopoly status, quotas, subsidies and maintenance of overvalued exchange rate were the most common instruments used to enforce the national Development Plan. Due to these interventions, the manufacturing sector received protection while agriculture was taxed implicitly (Alila & Atieno, 2006).

As a result of the implementation of the first development plan, the period between 1966 – 1972 were characterised by a net capital outflow from agricultural to non-agricultural sector and a decline in domestic terms of trade between agricultural and non-agricultural commodities. Agricultural income increased by 40% in the same period. Despite the policy environment favouring the non-agricultural sector, agricultural sector continued to thrive (Alila & Atieno, 2006).

Before independence, the Europeans owned most of the agricultural farmlands and activities in Kenya. Thus, policies that came up immediately after independence strived to change this ownership structure. This effort commenced with the expansion of the limited land reform program that had been developed in mid 1950s. Between 1963-64 and 1968-69, government devoted most of its efforts towards land transfer and resettlement of smallholders on formerly European owned mixed farms. By the end of 1969, land transfer reforms accounted for over three-quarter of the agricultural expenditure. With all this effort and financing, only one third (934,000 hectares) of European farmland was made available half of which was occupied by over 500,000 smallholder

farmers. Two thirds of the land remained untouched (Alila & Atieno, 2006).

The second most important policy goal by the time was development of smallholder agriculture. By 1979, over two thirds of the 6.2 million hectares was farmed and controlled by smallholder farmers each owning about 2 hectares on average. The government set up the Kenya Tea Development Authority to promote tea as a main cash crop in order to widen exports. The body was also mandated to oversee the management of the rapidly growing tea industry and its promotion to smallholders (Alila & Atieno, 2006).

Immediately after acquiring independence from the British colonial masters, the new Kenyan government developed National Development Plans to guide national developments. This system continued with the subsequent governments that followed to an extent that a master plan, Vision 2030 was developed to guide the general flow of national development.

### *3.2.1 The First National Development Plan (1964-1970).*

This targeted increasing agricultural production for major commodities such as rice to 40,600MT. The Key policy concerns included low productivity of rice, low volumes of output, very low levels of consumption, high retail prices, low yielding varieties, poor quality of locally milled rice, impassable roads in the rice producing areas. Rice was among the commodities that were regulated and reserved to be traded by African traders. This is because, consumption of rice was assumed to be lowered by the high retail prices and the poor quality of rice on the market plus the fact that rice was not a traditional crop (GoK, 1964). As a result, over 13,210MT of rice was marketed in 1964 while 18,747 MT and 18,800 MT in 1967 and 1970 respectively.

Expansion of rice production and land area under rice production was given keen attention. As a result, about K£2.5 million of development funds was invested in irrigation schemes. The irrigated area at Mwea was increased from 3,890 hectares in 1969 to 4,650 hectares in 1970, at cost of about K£278,000. This was intended to accommodate about 2,175 families to live on the irrigation scheme and with an expected yield of about 25,000 tons of paddy and expected gross value of over K£600,000 after milling. Over 800 hectares of pilot project was started at Ahero in 1966 to assess the feasibility of irrigating the Kano plains. The expected yield was about 7,000MT per year. To conduct agronomy and mechanisation trials and market prospects for rice, an investigation centre was established at Ahero. Consistent with the pilot in Ahero, a 200 hectare pilot irrigation scheme was established at Bunyala close to Nzoia river to be planted with rice and other crops (GoK, 1969).

In order to introduce new varieties that perform better than those that existed earlier, field tests were conducted and if successful, the government was to introduce the varieties in the next planting period. By the time, all the paddy produced was milled by a mill in Mwea jointly owned by National Irrigation Board and Mwea Farmers' Cooperative Society. In

order to increase the milling capacity of the mill, an additional investment of K£ 107,000 was used to upgrade the mill. All these efforts were aimed at lowering the prices of rice and other crops and export surplus in case it seemed profitable (GoK, 1964).

### *3.2.2 The Second Development Plan (1970-1974).*

This was directed towards widening and increasing the share of the total resources available in Kenya towards rural areas. This was intended to accelerate development and promote balanced national development. It was also intended to widen employment opportunities for the rural population and encourage them to wholly participate in driving national development. All the efforts were targeted towards raising the level of agricultural income in rural areas. In other words, the second National Development Plan was a continuation and implementation of the ideas earlier perceived in the first National Development Plan (GoK, 1969).

The rice sub sector directly and indirectly benefited from the initiatives of this plan in many ways. Secondary road systems were emphasized and improved, rural water supply was improved making water more available and accessible in rural areas for agricultural production. Provision of social services in rural areas was improved and extension of electricity rural amenities was extended which benefited the small scale millers of rice by that time. All the rice related targets in the first national Development Plan were equally pursued in the second National Development Plan (GoK, 1969, 1973).

### *3.2.3 The Third Development Plan (1974-1978).*

This intended to provide technical assistance and credit in both agriculture and industry as well as providing infrastructure and facilities such as roads, power and health facilities. Provision of resources for technical skills development was considered, improving the greater efficiency of agricultural cooperatives was to be given attention, increasing quantity of agricultural output, encouraging subdivision of large land holdings and increasing productivity and employment (GoK, 1973).

During this period, secondary road networks and feeder roads were improved connecting the farming communities directly to marketing centres. The agricultural development road programme embarked on rice roads to facilitate access to large schemes. Majority of the rice roads concentrated in Mwea Tebere area. At the same time, government continued fixing producer prices for products produced for the domestic price including rice. Farmers within Mwea switched from Sindano to a much more yielding and disease tolerant Basmati variety. Contrary to the policy concern during the first National Development Plan, rice consumption increased rapidly than was expected (GoK, 1973, 1979).

### *3.2.4 The Fourth Development Plan (1979-83).*

This aimed at attacking poverty through increasing and creating income generating opportunities. The objectives

pursued were; supporting capacity utilisation, employment creation and rural development (GoK, 1979).

Unexpectedly, the domestic consumption of rice surpassed domestic production which prompted importation to meet domestic demand. Research about the varieties suitable in different growing regions, appropriate agronomic practices capable of improving yield was launched. A 3,000-hectare land was allocated for this purpose. A K£2 million rice mill was proposed to be installed in Kisumu to match the increase in rice yield but also the ever increasing domestic demand (GoK, 1979, 1984).

### *3.2.5 The Fifth Development Plan (1984-88).*

This targeted increasing GDP growth, raising foreign exchange capacity of the country and creating more employment. This was to be catalysed by increasing resource capacity utilisation, maintain reasonable balance between development and recurrent expenditures and promote commercial investments. It included measures intended to maintain and improve the environment (GoK, 1984).

During this period, rice availability in the domestic markets improved, rice remained subject to price controls. The prices were set in a way that they stimulated food production. By this time, domestic rice production was still less than the demand and thus importation was necessitated to meet the domestic demand. Though this was happening, government was rapidly expanding rice production to curb this trend (GoK, 1984, 1988).

### *3.2.6 The Sixth development plan (1989-1993).*

This placed agriculture at a significant role of leading the feeding of the population, generating income and employment, greatly contributing to foreign exchange earnings and inducing growth in other sectors of the economy. To achieve this, government committed to creating an enabling environment in form of incentives to motive increased agricultural production. Rice was among the crops to benefit from this government arrangement (GoK, 1988).

As a result of these initiatives, rice yield increased from 26MT in 1987 to 41MT in 1993. Importation of rice was still allowed to close the deficit gap. National Cereals Produce Board (NCPB) developed integrated stock and financial management systems with emphasis on major value chains such as rice. However, NCPB did not achieve the objective of price and income stabilisation for farmers. Continued priority to expand irrigation schemes to promote rice production was still pursued under this plan. It was intended to translate to increased incomes and foreign exchange incomes. At a later stage, government lifted price controls on some commodities but maintained the control on rice (GoK, 1988, 1994).

### *3.2.7 The Seventh development plan (1994-1996).*

This based on the fact that agriculture needed to be revised due to rapidly evolving socio-economic environment. The revision would take into consideration delivery of services of a public goods nature and progressively encouraging private

sector participation. Sustainable agriculture and rural development was to be strengthened and adopted geared towards sustainable food production and security. Main targets of this plan included internal self-sufficiency in mainly basic foods, production for export, agricultural research, strategic reserves, agro-industrial raw materials, climate change and genetic resources (GoK, 1994).

Due to the high domestic demand of rice relative to its production, the goal of achieving increased foreign exchange savings from increased production of rice was not achieved. It instead appeared as a major imported commodity by the country. The low domestic production was attributed to the lack of adequate and affordable mechanisation services. Though the importation of rice was justified, the plan targeted towards imposing import duties from dumping of cheap imports which would be followed by offering minimum prices to farmers to stimulate them to produce more. In 1992, variable import duties were levied on many dumped commodities including rice (GoK, 1994, 1997).

### *3.2.8 The Eighth Development Plan (1997-2001).*

It based on transforming Kenya's economy relying on agriculture to achieve a status of Newly Industrialized Country. The twin engines for transforming the economy were Agriculture and Industry. Light agro based industries were to be established in rural areas and small towns. This was intended to provide ready markets for agricultural produce abundantly produced in rural areas (GoK, 1997).

During the period under consideration, agricultural wastes such as rice husks started being used for fuelling and firing kilns in the manufacture of building materials i.e. bricks and tiles. Rice husks were equally applied as additives in mortar to reduce the amount of cement used in construction. Briquettes from rice husks were introduced in the same period. The government conducted a survey to determine the quantity of by-products produced from rice in all the rice producing areas to best determine the potential of the industry (GoK, 1997; Njuguna, 2011).

### *3.2.9 The Ninth Development Plan (2002-2008).*

This aimed at achieving effective management for sustainable economic growth and poverty reduction while emphasizing strengthening the management of the development process. However, after the general elections in 2002, the new government that was sworn in dumped the ninth Development Plan and replaced it with the Economic Recovery Strategy Paper for wealth employment creation (ERS) (Njuguna, 2011). This was to tackle poverty from all angles.

### *3.2.10 The Economic Recovery Strategy for Wealth and Employment Creation (2003-2007).*

This focused on macroeconomic objectives such as creating 500,000 jobs, reducing poverty, achieving high real GDP growth rate, containing average annual inflation below 5%, increasing foreign exchange reserves, containing the balance of payment, increasing domestic savings and achieving high

levels of investment for sustainable development. However, the plan intended to make Kenya less agricultural dependent by diversifying to other sectors while still recognizing the strategic position of agriculture in fighting poverty (Ministry of State for Planning, 2003).

Much as the target was to make the economy less reliant on agriculture, the expected economic growth was to be based on improvement of productive sectors such as agriculture. During this period, the government rehabilitated irrigation schemes to increase production of crops such as rice. The irrigation act was finalized to facilitate farmer participation in irrigation development. Extension services were strengthened and smallholder access to credit was improved. Cooperatives Societies Act was reviewed to revamp agricultural cooperative movements. Microfinance institutions were developed to raise the productivity of farmers, access to affordable credit. Irrigation infrastructure construction and maintenance was discussed in order to promote all year round agriculture to enhance food security (Ministry of State for Planning, 2003; Njuguna, 2011).

### 3.3 Rice specific policies.

In 2008, the very first strategy targeting rice value chain was developed to guide the sub sector for the next ten years.

#### 3.3.1 The National Rice Development Strategy (2008-2018) phase I.

This aimed at improving food security and income of Kenyans through sustainable rice production, marketing and utilisation. Rice was intended to improve livelihoods, food security and economic growth. The production and productivity of rice was equally targeted, value addition, competitiveness and sustainable production technologies. Production was to be doubled both in rain fed and irrigated conditions through land expansion. It also intended to reduce field and storage losses, improve access to credit and high quality inputs, improved provision of extension services, rice stakeholders' forum was to be established (MOA, 2008).

As the achievement in the first phase of National Rice Development Strategy, rice production was expected to double from 52,000MT in 2008, but by 2016 rice production had instead tripled to 150,000MT by 2016 just two years before the end of the strategy. Consistent with the previous plans, rice consumption continuously surpassed the production level thus worsening the importation burden. System of Rice Intensification (SRI) was modified to Water Saving Rice Culture (WSRC) with yields increasing by 13%, mechanisation was improved by the introduction of mechanical weeders, threshers and combine harvesters, post-harvest losses reduced by 2.4%. In addition, two rice research laboratories were constructed at KALRO Mwea and KALRO Kibos, capacity of researchers and extension staff and farmers across the whole country was built, access to quality extension service improved by 22.5% and rehabilitation and expansion of irrigation infrastructures were conducted (NRDS, 2020).

#### 3.3.2 The second phase of National Rice Development Strategy (2019-2030).

The general objective is to increase domestic rice production from 128,000MT in 2018 to 846,000MT by 2030. This is to be achieved through expansion of area under rice production from 43,619 Ha in 2018 to 174,000 Ha in 2030. The productivity is expected to increase from 4.0 MT/Ha to 7.5 MT/Ha, imported volumes are expected to reduce from 625,000MT in 2018 to negligible by 2030, private sector participation in agribusiness to be encouraged, at least 3 new value added rice products and 3 new producer marketing organisations (NRDS, 2020).

#### 3.4 Other general agricultural policies.

The policies under this section cover agriculture as a whole but rice directly and indirectly benefits from most of the interventions implemented in order to achieve the goals and objectives of the policies included.

##### 3.4.1 The Agriculture Sector Mechanization Policy (2021).

It was developed to create an enabling environment for mechanisation development, research and technology development, capacity building, providing quality assurance and promoting mechanisation for increased productivity. The policy intends to achieve optimal development and management of mechanisation in Kenya (MoALF&I, 2021b).

Rice is to benefit from this policy through improved mechanisation; Support offered to the local manufacturing entities (Jua Kali) to produce standardised products, promotion and commercialisation of the tools and equipment; Increased area under rice cultivation; Reduced drudgery in rice production; Reduced post-harvest losses increasing efficiency, productivity and profitability; Training beneficiaries about the use of mechanical tools such as tractors, reapers, threshers (MoALF&I, 2021b).

##### 3.4.2 National Agricultural Research System Policy (2021).

This aims at supporting and coordinating integrated agricultural research systems for sustainable development and increased agricultural innovation. The main objectives are to facilitate consistency in codifying agricultural research, foster coordination and collaboration in agricultural research, coordinate agricultural research and planning, efficient and effective agricultural knowledge management systems, promote upscaling and commercialisation of agricultural research innovations and technologies, facilitate capacity utilisation in agricultural research and achieving sustainable funding for agricultural research (MoALF&I, 2021d).

##### 3.4.3 Kenya Vision 2030.

This is a broad master plan for the development and guidance of Kenya. The plan intends to promote agricultural research and development through enhancing collaboration with research and education institutions while linking farmers and researchers. It puts emphasis on research on irrigation and increasing funding for agricultural research. It involves

intentions of revamping the agricultural extension system to include joint efforts from government, private sector and Non-Governmental Organisations while supporting farmers access to market and value addition opportunities. It also targets promotion of post-harvest technologies to further lower post-harvest losses (GoK, 2007).

Government committed to strengthen and upgrade farmer organisations, increasing funding and multiplication of quality seeds, promotion and distribution of lowcost irrigation technology, reorganisation of agricultural investment, plan for development of idle lands, improving access to farm inputs, promoting technology and technology uptake, provision of credit inputs, post-harvest handling and improving access to the market. Enhancing agricultural information service provision and financial agricultural businesses are equally given keen consideration (GoK, 2007).

#### 3.4.4 National Agriculture Policy (2021).

This has an overall goal of attaining household and national food security while sustainably and equitably using land for agricultural production. To achieve this goal, the policy will intensify and diversify agricultural production and productivity, improve soil fertility for increased production, promote commercialisation, minimise post-harvest losses, promote marketing of high quality agricultural products, promote agricultural mechanisation, promote agricultural value addition, encourage demand driven agricultural research, widen extension service coverage, empower agricultural value chain actors, provide affordable agricultural insurance (MoALF&I, 2021a).

#### 3.4.5 Agricultural Sector Growth and Transformation Strategy (ASTGS) (2019-2029).

It was developed based on three anchors and nine flagships. Among the anchors include to increase smallholder farmers' incomes, increase agricultural output and value addition, boost household food resilience. It has a specific focus on rice alongside other value chains to improve the nutrition of relief food (MoALF&I, 2019).

#### 3.4.6 National Agricultural Marketing Strategy (2021-2030).

This was aimed at improving the competitiveness and increase market access for all the agricultural produce and products produced within Kenya in order to enhance incomes and livelihoods of all the value chain actors. This is to be achieved through developing, maintaining and improving market infrastructure to promote efficient and effective marketing of agricultural produce; facilitating agricultural produce and products standards; Meeting market demand by sustainably supplying agricultural produce and products; Promoting agricultural value addition to increase market penetration and access; To enhance adoption of modern and innovative systems and to Develop proper transport infrastructure (MoALF&I, 2021c).

## IV. CONCLUSION AND RECOMMENDATION

Rice value chain was initially considered in the blanket agricultural and national development plans. It mainly benefited from the general support to the irrigation infrastructure and irrigation schemes. This was the case since the colonial period until 2008. In 2008, a stand-alone rice specific National Rice Development Strategy phase one was developed to drive the development within the rice value chain. Most of the targets were in relation to increasing area under rice production, widening the irrigation schemes and irrigation infrastructure, reducing reliance on rice importation, improving quality of rice, improving access to high yielding rice varieties, improving access to mechanisation and extension services, upgrading marketing infrastructure and value addition. Most of these targets have been achieved, however, productivity has still stagnated over the years which has resulted to reliance on importation of over 90% of rice to meet the domestic demand.

Most of the rice related strategies and interventions have been ideas that have always been determined by national policy makers and at national level. Inclusion of rice farming communities in the development of rice related strategies and interventions would generate greater results and ownership of the rice interventions. Learning from the previous strategies and plans can improve the styles of intervention of future plans and policies to avoid over repetition of targets and objectives. Fast tracking the implementation of the plans and policies can better guide the attainment of the objectives.

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## REFERENCES

- [1] Africa Rice Centre (WARDA)/FAO/SAA. (2008). NERICA: The New Rice for Africa – a Compendium. Somado E.A, Guei R.G and Keya S.O (eds.). Cotonou, Benin: Africa Rice Center (WARDA); Rome, Italy: FAO; Tokyo, Japan: Sasakawa Africa Association P. 210. Available at: <http://www.africarice.org/publications/nericacomp/Nerica%20Compendium.pdf>
- [2] Alila, P., & Atieno, R. (2006). Agricultural Policy in Kenya: Issues and Processes. Institute of Development Studies, 41. [https://www.fao.org/fileadmin/user\\_upload/fsn/docs/Ag\\_policy\\_Kenya.pdf](https://www.fao.org/fileadmin/user_upload/fsn/docs/Ag_policy_Kenya.pdf)
- [3] Atera, E., Florence, N. O., & Eucabeth, B. O. M. (2018). Production and marketing of rice in Kenya: Challenges and opportunities. *Journal of Development and Agricultural Economics*, 10(3), 64–70. <https://doi.org/10.5897/JDAE2017.0881>
- [4] Dianga, A.-I., N. Musila, R., & W. Joseph, K. (2022). Rainfed Rice Farming Production Constrains and Prospects, the Kenyan Situation. In *Integrative Advances in Rice Research*. IntechOpen. <https://doi.org/10.5772/intechopen.98389>
- [5] Food and Agriculture Organization (FAO) (2007). *International Rice Commission Newsletter*. Rome, Italy P 56.
- [6] Food and Agriculture Organization (FAO) (2015). *Rice Market monitor*. Rome, Italy 18:1.

- [7] FAOSTAT. (2022). Crops and livestock products. <https://www.fao.org/faostat/en/#data/QCL>
- [8] GoK. (1964). Development Plan 1964—1970. Government of Kenya. <https://repository.kippra.or.ke/bitstream/handle/123456789/2997/Development%20Plan%201964-1970.pdf?sequence=1&isAllowed=y>
- [9] GoK. (1969). Development Plan 1970-1974. Government of Kenya. <https://repository.kippra.or.ke/bitstream/handle/123456789/1421/Development%20plan%201970-74.pdf?sequence=1&isAllowed=y>
- [10] GoK. (1973). Development Plan 1974-1978. Government of Kenya. <https://repository.kippra.or.ke/handle/123456789/1422>
- [11] GoK. (1979). Development Plan 1979-1983. Government of Kenya. <http://repository.kippra.or.ke/handle/123456789/2998>
- [12] GoK. (1984). Development Plan 1984-1988. Government of Kenya. <http://repository.kippra.or.ke/handle/123456789/1429>
- [13] GoK. (1988). Development Plan 1989-1993. Government of Kenya. <http://repository.kippra.or.ke/handle/123456789/1430>
- [14] GoK. (1994). Development plan 1994-1996. Government of Kenya. <http://repository.kippra.or.ke/handle/123456789/1431>
- [15] GoK. (1997). Development Plan 1997-2001. Government of Kenya. <http://repository.kippra.or.ke/handle/123456789/1432>
- [16] GoK. (2007). Kenya Vision 2030. Government of the Republic of Kenya.
- [17] KNBS. (2019). Economic Survey. Kenya National Bureau of Statistics. <https://open.africa/dataset/9a9c52b6-65f6-4483-890f-3a34bb164ce2/resource/5b9357a4-6227-4fbf-9e10-ae7043a41ce3/download/final-economic-survey-2019.pdf>
- [18] Ministry of State for Planning. (2003). Economic Recovery Strategy for Wealth and Employment Creation 2003-2007. Ministry of State for Planning. <http://196.202.210.190:8090/handle/123456789/2059>
- [19] MOA. (2008). Ministry of Agriculture: National Rice Development Strategy (2008 – 2018). Ministry of Agriculture.
- [20] MoALF&I. (2019). Agricultural Sector Transformation and Growth Strategy (ASTGS). Ministry of Agriculture, Livestock, Fisheries and Irrigation.
- [21] MoALF&I. (2021a). Agricultural-Policy-2021. Ministry of Agriculture, Livestock & Fisheries and Cooperatives. <https://kilimo.go.ke/wp-content/uploads/2022/05/Agricultural-Policy-2021.pdf>
- [22] MoALF&I. (2021b). National Agricultural Mechanization Policy 2021. Ministry of Agriculture, Livestock & Fisheries and Cooperatives. <http://repository.kippra.or.ke/handle/123456789/3077>
- [23] MoALF&I. (2021c). National-Agricultural-Marketing-Strategy-2021. Ministry of Agriculture, Livestock & Fisheries and Cooperatives. <https://kilimo.go.ke/wp-content/uploads/2021/11/Draft-National-Agricultural-Marketing-Strategy-2021.11.04-edited.pdf>
- [24] MoALF&I. (2021d). National-Agriculture-Research-System-Policy-2021. Ministry of Agriculture, Livestock, Fisheries and Cooperatives. <http://repository.kippra.or.ke/handle/123456789/3075>
- [25] Ndirangu, S. N., & Oyange, W. A. (2019). Analysis of Millers in Kenya's Rice Value Chain. 12, 11.
- [26] Ngige, J. K. (2004). An Economic Analysis of Rice Production in Mwea Irrigation Scheme. 130.
- [27] Njuguna, R. (2011). Development Plans in Kenya: Factors Influencing Monitoring and Evaluation of Development Projects (A Case Study of Machakos District) [Thesis, University of Nairobi]. <http://erepository.uonbi.ac.ke:8080/handle/123456789/3151>
- [28] NRDS. (2020). National Rice Development Strategy-2 (2019–2030). Ministry of agriculture, livestock, fisheries and cooperatives.
- [29] Obura, J., Ombok, B., & Omugah, G. (2017). Analysis of Rice Supply Chain in Kenya. *International Journal of Managerial Studies and Research*, 5(8). <https://doi.org/10.20431/2349-0349.0508002>
- [30] Omamo, S.W. and A. Naseem. 2005. Agricultural science and technology policy for growth and poverty reduction. ISNAR Discussion Paper 3. International Service For National Agricultural Research (ISNAR), IFPRI, Washington D.C
- [31] Onyango, O. A. (2014). Rice production, Food security, New rice for Africa, Agricultural research and development. *World Environment*, 8.
- [32] Thanapan Laiprakobsup (2019) The policy effect of government assistance on the rice production in Southeast Asia: Comparative case studies of Thailand, Vietnam, and the Philippines, *Development Studies Research*, 6:1, 1-12, DOI: 10.1080/21665095.2019.1568900
- [33] Tobias A, Molina I, Valera HG, Mottaleb KA, Mohanty S. 2012. Handbook on rice policy for Asia. Los Baños (Philippines): International Rice Research Institute. 47 p.
- [34] Uma, A. (2022). History of rice in Kenya: When was rice first introduced in Kenya? VI(II), 23–27.
- [35] Vishnu, R., & Mukami, K. (2020). Mwea Rice Growers Multipurpose Public Case Report August 2020. USAID.