

The Relationship Between Research Permits and Patent Applications in Kenya over Ten Years (2014-2023)

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Abstract

This study sought to establish the relationship between research permits granted and the number of patents registered over 10 years in Kenya from 2014 to 2023. Over that period, Kenya ranked at number ten in Africa in terms of patents granted and very low in world rankings compared to South Africa, which ranked number 17 in the world. Data on research permits granted in Kenya, as well as patents registered was obtained from various sources. For purposes of comparing permits obtained and patents registered, only research permits granted in the sciences were considered. Results showed an increasing trend in the number of research permits obtained as well as in patents registered. Over the ten years, the relationship between research permits obtained and patents registered was represented by the equation $Y = 0.0062X + 3.9473$. The constant was interpreted as a 'carry over' effect due to delays in processing patents. All in all, very few patents are registered in Kenya as compared to the number of research permits granted.

Keywords: research permits, patents, commercialization

1. Introduction

Research permits and patents in Kenya are intricately related. Patents result from research efforts. For one to conduct research in Kenya, obtaining a research permit is mandatory. A research permit, therefore, precedes a patent application.

A research permit/ permit is a document granted to a researcher or a research institution that enables them to undertake research in Kenya.¹ The requirement of applying for and obtaining a research permit appears to be a universal practice.² In fact, researchers from one country seeking to do research in another country may require permissions from both countries. The process of granting research in African countries has been described as cumbersome. This could be due to the centralized nature of such processes as opposed to most institutions in the West, such as the USA, where permit approvals have been localized at institutions.³

In Kenya, a research permit is granted by the National Commission for Science, Technology and Innovation (hereinafter referred to as 'NACOSTI'). Such permits also allow entry to specific areas that may not be easily or

¹ Science, Technology and Innovation Act 2013 s 12.

² U Engel. (2015). 'Introduction' in U Engel, C Gebauer & A Hüncke (eds), *Notes from Within and Without: Research Permits between Requirements and "Realities"*. SPP Working Paper Series No 16, DFG at <https://kops.uni-konstanz.de/bitstreams/2e3c5588-cb9a-426d-bc1e-37fa6c55f5e0/download> accessed 16 May 2025

³ L Johnson & J Namai. (2023). Research Authorization Processes: A Descriptive Comparison of Kenya and The United States of America. *Journal of the Kenya National Commission for UNESCO*, 3(1), at < <https://journals.unesco.go.ke/index.php/jkncatcom/article/view/25> > accessed 30 November 2025.

normally accessible.¹ NACOSTI oversees Kenya's centralized research authorization system, which requires all researchers, regardless of discipline or institutional affiliation, to obtain formal authorization before beginning any study.² This approach is set up to guarantee that research endeavors serve the general public interest while also conforming to national ethical norms. NACOSTI has accredited over 30 Institutional Scientific and Ethics Review Committees (ISERC) at universities and research institutions to do the initial screening of applications. Before researchers can apply for final permission from NACOSTI, they must first undergo preliminary ethical evaluations conducted by Institutional Scientific and Ethics Review Committees (ISERCs).³ Although the goal of this framework is to maintain strict ethical control, it also introduces a methodical procedure that can be expensive and time-consuming, frequently requiring researchers to go through several levels of approval. From here, approval for clinical trials goes to the Pharmacy and Poisons Board, and later to NACOSTI. Such delays could also mean an overflow from one year to the next.⁴ Non-clinical studies go straight to NACOSTI after approval by ISERC. This process is said to occasion delays in approvals and grant of research permits. A research permit will be granted by NACOSTI if it is convinced that the applicant meets the legal conditions.⁵ Once a permit is issued it is valid for a year from the date of issuance and can be renewed upon receiving an application at least two months before the permit's expiration date.⁶ The Commission may either reject the application or provide its comments or recommendations and send them to the applicant if it believes the application does not satisfy the requirements set forth in the Act.⁷ A comparison between review processes at a Kenyan and US university revealed that none of them provided information on the criteria used to evaluate research proposals. Additionally, it was observed that placing the cost of the application for approval on individuals, as is the case with Kenya, was likely to affect the number of applications made, or put differently, to affect research activities. It was also found that the US has a policy of localized research clearance, whereas Kenya practices a centralized system⁸. This is to show that Kenya's model is likely to restrain research activity.

In many African nations, research licensing is presented as a tool of sovereign control, meant to enforce national sovereignty over international research and oversee ethical compliance. But the real process of getting permissions frequently exposes opacity, contradictions, and bargaining that are very different from the official legal framework.⁹ In the year 2015, NACOSTI granted a total of 3887 permits out of 4360 permit applications. The decrease in the number granted relative to the applications filed was also seen in 2016, when 4701 applications were filed but only 4265 were granted. In 2017, there were 4,618 applications, but NACOSTI granted only 4,461¹⁰ permits. There were 6,623 permit applications in 2018/19, up by 43.4% from 4,618 in 2017–18. In 2018-19, NACOSTI awarded 6,015 permits, a 34.8% and 90.8% of all permit applications received.¹¹

¹ Wekesa M. (2015). Challenges in Regulation of Biomedical Research: The Case of Kenya. *Nigerian Journal of Clinical Practice*. <https://repository.daystar.ac.ke/items/c7e54bc7-fd05-4e3c-b6be-a3daeab24af2/full> accessed 7 June 2025

² NACOSTI. (October 2017). Guidelines for Accreditation of Institutional Ethics Review Committees in Kenya. [https://www.nacosti.go.ke/nacosti/Docs/QUICK%20DOWNLOADS/Guidelines%20for%20Accreditation%20of%20IERC\(1\).pdf](https://www.nacosti.go.ke/nacosti/Docs/QUICK%20DOWNLOADS/Guidelines%20for%20Accreditation%20of%20IERC(1).pdf) accessed 20 May 2025

³ L Johnson and J Namai. (2023). *Research Authorization Processes: A Descriptive Comparison of Kenya and the United States of America*. *Journal of the Kenya National Commission for UNESCO*, 3(1). < <https://journals.unesco.go.ke/index.php/jkncatcom/article/view/25> > accessed 16th May 2025

⁴ M Chelangat & A Oketch. (2023). Clinical Trial Approvals Headache for Kenyan Researchers. *Daily Nation*. at < <https://nation.africa/kenya/health/clinical-trial-approvals-headache-for-kenyan-researchers-4467838> > accessed 30 November 2025

⁵ Ibid, Regulation 7.

⁶ Ibid, Regulation 8.

⁷ Ibid.

⁸ L Johnson & J Namai. (2023). *Research Authorization Processes: A Descriptive Comparison of Kenya and The United States of America*. *Journal of the Kenya National Commission for UNESCO*, 3(1), at < <https://journals.unesco.go.ke/index.php/jkncatcom/article/view/25> > accessed 30 November 2025

⁹ U Engel C Gebauer and A Hüncke. (2015). Notes from Within and Without – Research Permits between Requirements and “Realities”. Working Paper Series No 16, DFG. <https://kops.uni-konstanz.de/bitstreams/2e3c5588-cb9a-426d-bc1e-37fa6c55f5e0/download> accessed 16 May 2025

¹⁰ G Nakweya. (2 November 2021). Research Licence Applications Dwindle due to COVID-19. *University World News* (Nairobi, Kenya). <https://www.universityworldnews.com/post.php?story=20211031082256863> accessed 7 June 2025.

¹¹ Kenya National Bureau of Statistics. (2021). *Economics Survey Report 2021*. <https://www.knbs.or.ke/wpcontent/uploads/2021/09/Economic-Survey-2021.pdf>

In 2019-2020, the number of research permits was reported to have decreased by 8.2%. This decline is reportedly attributed to the closure of higher institutions during the COVID-19.¹ In 2020/21 there were 5985 permit applications, and 5163 were granted. In 2021/2022, 6143 applications were filed, and 6048 were granted.

The above statistics of the number of research permits applied for and granted highlight a high approval rate, suggesting that generally, Kenya's research activity had expanded over the study period.

NACOSTI's efforts, in partnership with other organizations like universities and research institutes, to raise awareness and educate researchers and students about the necessity, advantages, processes, and legal ramifications of licensing research work are credited for the increase in the quantity of research permit applications and permits granted.²

However, researchers still face various challenges when applying for these permits. Some of these challenges include institutional delays, and research permits from various ministries take a long time to approve.³ Multiple approval stages, for example, in Kenya, to carry out clinical trial research, one must first get approval from various bodies before finally getting the permit. It is only after navigating around the research permit application and granting that a person can proceed to carry on with the research, and eventually to a patent.

Patents, Research and Development

Intellectual Property rights are rights granted for the protection of creations of the mind. They include copyrights, patents, trademarks, utility models, industrial designs, plant breeders' rights, and trade secrets.⁴ The protection granted is for a specific period during which the creator has exclusive rights to that creation. The Constitution of Kenya, 2010, provides for the protection of these rights. It recognizes intellectual property as a form of property and valid rights capable of being enforced and protected.⁵

A patent is an exclusive right granted to protect an invention that provides a new way of doing something or offers a new technical solution to a problem for a limited time (mostly 20 years) in exchange for knowledge disclosure to the public⁶. For an invention to be patented, it has to meet the following criteria: it has to be new, based on an inventive step, and, finally, industrially applicable.⁷ Patents are a result of research carried out. Research & development are significant elements that support inventions that are subsequently protected by patents.⁸

Global patent activity is concentrated in a few countries, which dominate filings and grants worldwide. As of 2024, China granted 1,044,777 patents, followed by the USA 603,194, Japan 306,855, South Korea 246,245, India 64,941, Russia 26,698, Germany 23,944, Australia 19,276, UK 18,952, and Mexico 16,189. These are the top ten countries in the world with respect to patents. These 10 countries account for 88% of all applications filed annually.⁹

In 2023, it is reported that China rejected more than half a million patent applications. Even then, it remained the top country in terms of patents granted. Other industrialized countries showed a trend of several pending applications. In other words, all patent offices appear to have a 'carry over' into the following years.¹⁰ In the same year, Patents in Africa increased by 3.8% from 14,800 to 21,500.¹¹

¹ G Nakweya. (2 November 2021). Research Licence Applications Dwindle due to COVID-19. *University World News* (Nairobi, Kenya). <https://www.universityworldnews.com/post.php?story=20211031082256863> accessed 7 June 2025.

² Ibid.

³ JA Vuban and EA Eta. (2019). Negotiating Access to Research Sites and Participants within an African Context: The Case of Cameroon. *Research Ethics*, 15(1), 1.

⁴ M Wekesa and B Sihanya (eds). (2009). *Intellectual Property Rights in Kenya* (Konrad Adenauer Stiftung, SportsLink Limited, Nairobi).

⁵ Arts 11(c) and 40.

⁶ 'Patents' (WIPO). <https://www.wipo.int/en/web/patents> 16th November 2024

⁷ Industrial Property Act, 23-25.

⁸ E Siringi. (2020). Commercialization Models of University Research Output and Patenting Policy Practices in Kenya.

⁹ World Population Review 'Patents by Country 2025' at < <https://worldpopulationreview.com/country-rankings/patents-by-country> > accessed on 14 December 2025.

¹⁰ World Population Review 'Patents by Country 2025' at < <https://worldpopulationreview.com/country-rankings/patents-by-country> > accessed on 14 December 2025.

¹¹ World Intellectual Property Indicators 2024 at <<https://www.wipo.int/edocs/pubdocs/en/wipo-pub-941-2024-en-world-intellectual-property-indicators-2024.pdf> > accessed on 14 December 2025.

In terms of patent filings in Africa, Kenya ranks 10th behind South Africa in first position, followed by Nigeria, Algeria, Morocco, Egypt, Seychelles, Madagascar, Gambia, and Angola. It is instructive that countries with small populations like Seychelles, Madagascar, and Gambia are ahead of Kenya in matters of innovation.¹ According to filings at the African Regional Intellectual Property Organization (ARIPO) in 2024, Mauritius was the top country in Africa, followed by Zimbabwe, Namibia, Uganda, and Mozambique.²

Patent protection first emerged in Kenya in 1914 when the Patents and Designs Ordinance 1913 was passed, and the first patent was registered under Marconi's Wireless Telegraph Company of the United Kingdom on December 23, 1914³. Before the Industrial Property Act, CAP 509 was passed in 1989, Kenya's patent system was still based on the UK system. Before the Industrial Property of 1989, patents and designs granted in England were registered locally without undergoing inspection. The Kenya Industrial Property Office (KIPO) was established in 1989 with the establishment of the Industrial Property Act.⁴ Its duties include examining, granting, and registering patents, utility models, and industrial designs. The government of Kenya appreciates the role of IPR as a tool for trade and development. Kenya, therefore, has institutions that conduct research and development (R&D), which are part of a country's national innovation ecosystem. Such institutions are potential generators and users of IP. These institutions affect capacity building and create new knowledge.⁵ Kenya has enacted and implemented several pieces of legislation on IPRs to provide incentives for creations and innovations.⁶

Kenya has enacted and implemented several legislations on IPRs to provide incentives for creations and innovations.⁷ The purpose of the patent law is to allow Kenya to support its development requirements through its patent policy. Nevertheless, a review of patent statistics shows that the passage of this statute has had no appreciable impact on the number of patent applications or patents granted.⁸ According to the Kenya Innovation Survey (2012), only 12.9% of businesses in Kenya had obtained patents, and only 7% of those firms reported using their patents. Other studies have revealed that 65% of innovators in Kenya have not protected their inventions, and 53% have reported having little knowledge of intellectual property.⁹

In 2015, the number of patents granted was 48, with only one being granted to a resident. In 2016, there were 29 patents, 5 of them being granted to residents and 24 to foreigners; 2017 had 51 patents, 11 being granted to residents and 40 to foreigners.¹⁰ The Kenya Industrial Property Institute (KIPI) reports that as of mid-2016, there were just four patents and seven utility model certificates in Kenya's higher education institutions. While corporations accounted for 22 patents, only one government research center held an active patent. As of November 2017, the Jomo Kenyatta University of Agriculture and Technology (JKUAT) had four patents, suggesting that these figures have improved from the middle of 2016.¹¹ In 2018, a total of 26 patents were granted, and they were all given to residents. In the year 2019, there were a total of 67 patents, five of which were granted to residents and 62 to foreigners. In 2020, there were 66 patents granted, five were granted to residents and 61 to foreigners. In 2021, there were 82 patents granted, 68 being granted to foreigners and 14 to residents.¹² Overall, the data reveals consistently low patenting by Kenyan residents and public institutions,

¹ Olasupo F. (Sep 06, 2025). Top 10 African Countries by Patents in 2025. *The African Exponent*.

² 2024 ARIPO Filing Highlights at < <https://www.aripo.org/success-stories/2024-ip-filing-trends-key-insights-from-aripos-top-applicants-8251> > accessed 14 December 2025.

³ M Wekesa. (2015). Challenges in Regulation of Biomedical Research: The Case of Kenya. *Nigerian Journal of Clinical Practice*. <https://repository.daystar.ac.ke/items/c7e54bc7-fd05-4e3c-b6be-a3daeab24af2/full> accessed 7 June 2025

⁴ CAP 509 of the Laws of Kenya.

⁵ M Kiveu. (2012). 'Patenting in Kenya: Status and Challenges'. Discussion Paper Series No. DP/141/2012, Kenya Institute of Public Policy Research and Analysis, KIPPRA Discussion Paper No. 141 of 2012 at < <https://repository.kippira.or.ke/server/api/core/bitstreams/9745ff1f-eea5-405d-ab84-e97b9ef2c2f5/content> > accessed 30 November 2025

⁶ Ibid.

⁷ Ibid.

⁸ Ibid, 31.

⁹ Ministry of Higher Education, Science and Technology, Kenya Innovation Survey Report 2012. <https://www.education.go.ke/sites/default/files/2022-05/innovation-survey-report.pdf> last accessed 7th June 2025

¹⁰ Kenya – IP Statistics Country Profile (WIPO). https://www.wipo.int/ipstats/en/statistics/country_profile/countries/ke_content.html accessed 7th June 2025

¹¹ M Kiveu (n 58) 32.

¹² Ibid.

indicating weaknesses in local innovation uptake and research commercialization.

Universities and research institutions mostly carry out research. However, most of this research is not commercialized. This is due to several factors, including but not limited to low funding, lack of research facilities, poor remuneration of researchers, and a non-entrepreneurial culture within universities.¹ These challenges have led to researchers having little to no incentives to engage in innovative research or to create innovations.² In addition, the needs of university dons are not always aligned to industry needs. The mantra in the academy is ‘publish or perish’. Hence, research is seen as leading to publications. And the more the merrier. Additionally, universities do not think of profit. Industry is profit driven. In contrast thereto, industry is interested in new products that would make it more competitive. Industry is thus interested in ‘applied’ or ‘practical’ research. Research that leads to inventions and creations, and eventually, to new products for the market.³

Publication of research findings establishes academic reputations. However, the early release of an invention can harm patent applications.⁴ For an invention to be considered new, it must not have been disclosed to the public. In Kenya, the Industrial Property Act provides for a 12-month grace period after publication or disclosure.⁵ A grace period simply eliminates one’s publications from the prior art, which is the stock of all literature. That is, an invention will still be considered novel if an application is filed 12 months after the disclosure. Publication is the process of revealing innovation, initiative, or study to the public.⁶ Disclosure can occur through abstracts and theses. Journals, magazines, poster displays, open days, interviews, and confidential disclosure to many people are examples of disclosure.⁷

The invention must have been an inventive step, that is, it must not have been obvious to a person skilled in the art. This filters out inventions that are simply minor improvements over existing knowledge. It also promotes advancements in technology and serves the public interest. It keeps the patent system’s legitimacy and integrity intact. Industrial applicability means that an invention can be used and applied in the industry for which it was made. This was seen in a decision held by the U.S court in the case of *Universal Oil Products*⁸ where the US Supreme Court couched the view that:

As a reward for inventions and to encourage their disclosure, the United States offers a 17-year monopoly to an inventor who refrains from keeping his invention a trade secret.

The inventive step in a patent is arrived at after a researcher is granted a research permit.

In the case of *Metro-Poly Kenya Limited*,⁹ the applicant requested the revocation of Patent No. KE 861, Wheel Assembly, which had been issued to the respondent. The Applicant, a wheelbarrow wheel maker, learnt about the patent in early 2021 when the Respondent sent a cease-and-desist letter alleging that Metro-Poly’s wheels violated the patent. According to the applicant, the patent failed to meet the innovation threshold of section 23 because similar discoveries had already been made before the application was filed.¹⁰ In response, the Respondent contended that the patent had been legitimately granted following substantive review and that the revocation application was flawed. The issues for determination were whether Patent No. KE 861 ought to be cancelled due to its lack of inventiveness and uniqueness, and whether the wheel made by Metro-Poly violated Patent No. KE 861. The tribunal ordered the revocation of the patent.

In exchange for patent protection, the inventor must provide information about the creation for it to be used by

¹ M Wekesa et al. (2024). Commercialization of Intellectual Property Rights at Universities as an Additional Revenue Stream. *Law and Economy*, 3(3), 37.

² E Siringi. (7 November 2022). Commercialization Models of University Research Output and Patenting Policy Practices in Kenya. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4292259 last accessed 16th November 2024.

³ n34.

⁴ ‘Publish and Perish: How Publications Affect Patentability’ (University of Toledo) https://www.utoledo.edu/research/TechTransfer/Publish_and_Perish.html accessed 16 June 2025.

⁵ s 12(4).

⁶ Preethiya, ‘Academic Dilemma – Publish or Patent the Idea?’ (HelloLeads) <https://www.helloleads.io/blog/all/business-benefits/academic-dilemma-publish-or-patent-the-idea> accessed 16 June 2025.

⁷ ‘Publish and Perish’ n 8.

⁸ *Universal Oil Products Co v Globe Oil & Refining Co*, 322 US 471 (1944).

⁹ *Metro-Poly Kenya Limited v Ratilal (IPT Case 97 of 2021) [2022] KEIPT 862 (KLR)*.

¹⁰ Industrial Property Act of 2001.

the public when the patent expires. For an inventor to be granted a patent, a patent application has to be filed.¹ An application must contain the information about the invention, the date of filing for the patent, the protection period that the patent will cover, and the geographical area (geographically) of protection of the patent.² Patents give legal recognition to the owners of new inventions, providing them with the authority to stop others from using their invention and financial investment.

Patents provide returns to the inventor at three levels: recovering development expenses, profits from the sale of goods containing the invention, and revenues that can be gained from commercializing the patent. Commercialization refers to the process by which ideas or products resulting from academic departments, products, services, and processes will become available in the market.³ Research commercialization is the process through which ideas or research are transformed into marketable products, capital gains, income from permits, and/or revenue from the sale of new products.⁴ The process of commercialization covers idea generation, research, development, licensing, marketing, and monitoring.⁵ Commercialization of Intellectual Property Rights can therefore be described as the process of bringing intellectual property rights into the market for them to be exploited and return profits to the owner of the rights.

Research & Development has a significant role in creating inventions that are subsequently protected by patents. The amount of R&D and a country's patenting activity are thought to be directly correlated.⁶ Being acknowledged as the main producers and users of intellectual property (IP), universities and research and development (R&D) institutions are essential to a nation's innovation systems.⁷ These institutions serve as the main knowledge source.⁸ The mandate of these institutions, which is to apply knowledge to the production of goods, services, and technology, has received little attention and has remained underdeveloped.⁹ The majority of public R&D institutions suffer from a lack of necessary facilities for research, low staffing, and inadequate funding. There are also clear problems with the institutions' relationships with industry, farmers, businesses, and other knowledge consumers.¹⁰ As a result of this, patent applications from these institutions tend to be few.

Given that patents in Kenya are intricately connected to research permits, the main objective of this study was to find out the proportion of research permits that translated into successful patents in Kenya over a period of ten years.

2. Theoretical Framework

The justification for granting patents is often anchored in two theories, namely the reward theory and personhood theory. The reward theory argues that inventors deserve compensation for their creative contributions and the utility their inventions provide for society. The goal of the monopoly is to encourage innovation by providing a reasonable return on investment in labor, research, and creativity rather than to produce unjust riches. A proponent of this theory is John Stuart Mill, who says that patents should not be denounced as monopolies because they function as transitory tools to reward inventiveness. Mill argues that granting the inventor exclusive use of their creation only delays some of the benefits to the public, such as lower costs or better quality, until the innovator receives sufficient credit. In this way, the compensation is commensurate with the contribution's societal worth rather than being exorbitant, which promotes more

¹ 'Patents' (Kenya Industrial Property Institute) <https://www.kipi.go.ke/patents> last accessed November 16, 2024

² Ibid.

³ B Fakour. (2009), *Conditions predisposing to promote commercialization of research results in academic departments*. Approach. No. 40.p:35-39
http://ir.jooust.ac.ke/bitstream/handle/123456789/14244/Onderi_Re-%20Positioning%20Research%20in%20Turbulent%20Times%20Embracing%20Change%20in%20Innovation%20Science%2C%20Technology%2C%20Education%20and%20Business%20Perspectives.pdf?sequence=1&isAllowed=y accessed 16 May 2025

⁴ Siringi (n 5) 4.

⁵ Ibid.

⁶ M Kiveu. Patenting in Kenya: Status and Challenges (KIPPRA Discussion Paper No. 141, Kenya Institute for Public Policy Research and Analysis 2012). <https://repository.kippira.or.ke/bitstreams/9745ff1f-eea5-405d-ab84-e97b9ef2c2f5/download> 16 November 2024

⁷ OR Otieno. (2015). Intellectual Property (IP) Commercialization in Kenya: A Situational Analysis of Patenting and Challenges Faced Towards Its Commercialization.

⁸ Ibid.

⁹ E Siringi. (7 November 2022). Commercialization Models of University Research Output and Patenting Policy Practices in Kenya. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4292259 last accessed 16th November 2024

¹⁰ Ibid.

innovation without placing permanent limitations on public access. The second theory is the personhood theory, which holds that an individual's intellectual works are extensions of their self. The argument, which has its roots in Hegelian philosophy, maintains that patenting inventions is a means of safeguarding the unique identities that are incorporated into them. Therefore, unauthorized use is an invasion of personal expression as well as a violation of property. Patents thus protect the creator's moral and private rights by recognizing their emotional and intellectual investment in the invention.¹

3. Methodology

This study used a retrospective quantitative design where data were collected and analyzed. This was a historical study that analyzed the trends and documents over the past ten years in relation to patents and permits. This method allows the researcher to systematically collect and interpret existing records from the archives. The study covered ten years (2014-2023).

Data was collected using document analysis, which involved the review of existing documents. The data collected related to the total number of permits the number of permits granted to individuals and institutions, the field of study and level of study for each permit granted, the nationality and gender of individuals granted permits, and patents by origin (resident or foreign).

4. Data Analysis

Data was presented using descriptive statistics such as percentages, scatter graphs, and line graphs. Trend analysis was conducted. A regression of patents to research permits was done through linear regression to find out whether and how registration of patents is influenced by research permits. A regression equation was derived from the regression line.

5. Results and Discussion

5.1 Total Permits Granted by Nationality

Table 1 below shows the total number of permits granted in the period 2014/15-2023/24 categorized by nationality.

Table 1. Total Permits Granted by Nationality

Year	Total Number of Licences Granted	Granted To Kenyan/EAC Citizens	Granted To African-Non EAC Citizens	Granted To Non-African Citizens
2014/15	3343	3012	25	306
2015/16	3887	3615	18	254
2016/17	4265	3982	35	248
2017/18	4461	4075	75	311
2018/19	6015	5559	59	397
2019/20	6112	5792	53	267
202/21	5153	4895	75	183
2021/22	6048	5597	97	354
2022/23	8185	7698	125	362
2023/24	9627	9142	125	360

Between the fiscal years 2014/15 and 2023/24, the total number of permits given in Kenya increased steadily and significantly, from 3,343 in 2014/15 to 9,627 in 2023/2024. This nearly threefold increase during the ten years indicates a significant expansion in licensing operations. This can be attributed to changes in laws and regulations relating to research through which the enforcement of permits was improved.

5.2 Total Permits Granted by Gender

The representation of male and female applicants in the allocation process is considered in this section by looking at the overall number of permits issued, broken down by gender. The analysis sheds light on trends and differences in permit issuance during the study period that are connected to gender.

¹ M Bornhäuser. (2014). The Relation Between Intellectual Property Law and Competition Law Using the Example of Standard Essential Patents. LLM thesis, University of Cape Town.

Table 2. Total Permits Granted by Gender

Year	Female	Male	Total Individual Permits Granted
2014	1667	1587	3254
2015	1870	1902	3772
2016	2021	2090	4111
2017	2089	2153	4242
2018	2742	2977	5719
2019	2857	3255	6112
2020	2361	2792	5153
2021	2828	3220	6048
2022	3327	3809	7136

Between 2014 and 2022, data on individual permits granted in Kenya show a slow but considerable shift toward more gender balance. While men continue to receive significantly more permits each year, the gap between male and female recipients has stayed relatively low, showing increased gender activity in research.

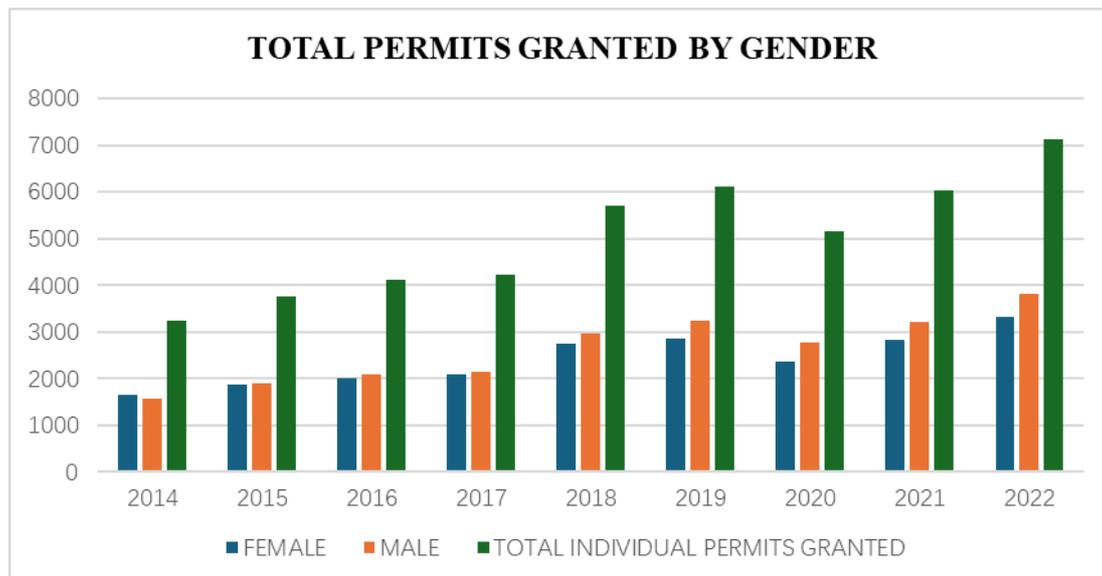


Figure 1. Total Permits Granted by Gender

In 2014, 1,667 permits were awarded to females and 1,587 to males, making it the only year in which women outnumbered men in permit approvals. In succeeding years, male beneficiaries somewhat surpassed female recipients, although the difference was small. For example, in 2022, 3,327 women acquired permits vs 3,809 men, resulting in a gender difference of only 482 permits out of a total of 7,136. The constant increase in the number of permits given to women—from 1,667 in 2014 to 3,327 in 2022—indicates a favorable trend in women’s participation in research, which could be attributed to increased access to education, professional possibilities, or gender-focused policy changes. Table 3: Analysis of research permits granted over the past ten years.

5.3 Individual Permits Granted by Field of Study

Table 3 shows the distribution of research permits among different fields of study.

Table 3. Individual Permits Granted by Field of Study

	Agriculture and Natural	Earth and Space	Health and Biological	Humanities and Social	ICT and Infrastructure	Physical, Industrial
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	Resources Sciences	Sciences	Sciences	Sciences	Sciences	and Energy Sciences
2014/15	43	95	258	2783	60	15
2015/16	33	91	157	3379	77	55
2016/17	71	132	339	3348	151	70
2017/18	80	150	427	3365	152	68
2018/19	143	261	621	4362	215	117
2019/20	303	62	1372	3985	293	97
2020/21	297	54	1113	3411	214	64
2021/22	316	93	1408	3893	246	92
2022/23	338	69	1753	4567	298	111
2023/24	358	83	2112	5394	364	169

Figure 2 shows the number of individual permits granted in six academic and scientific categories, giving insight into the thematic focus of research activity in Kenya. The humanities and social sciences continuously dominate the national research landscape, accounting for the largest number and proportion of research permits every year.

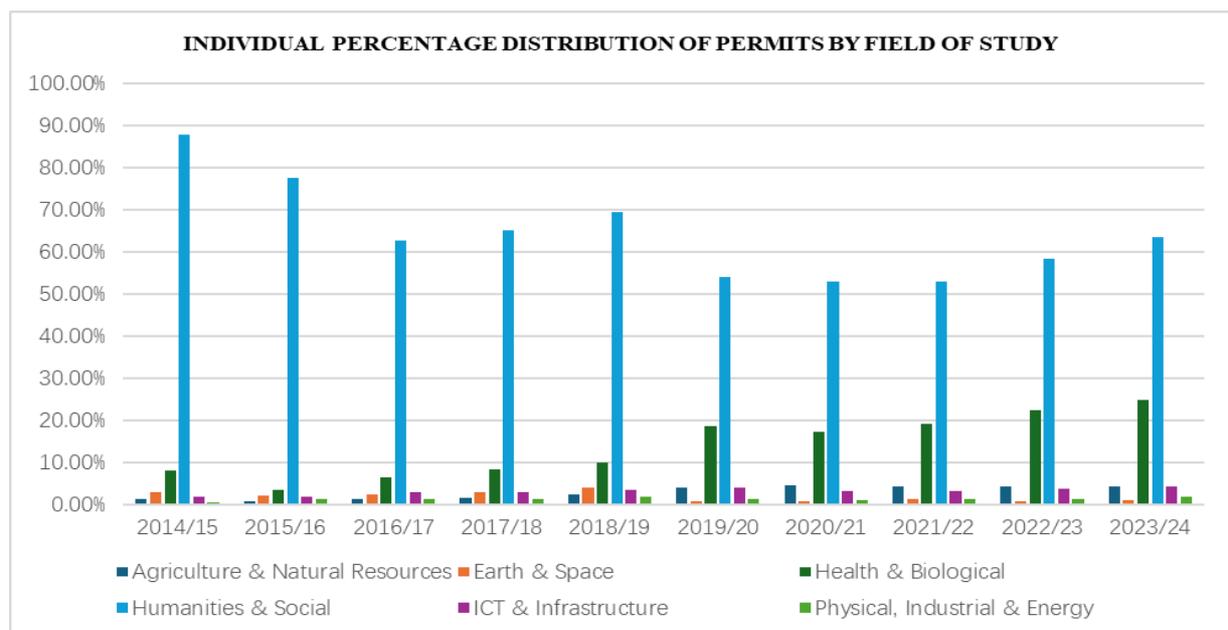


Figure 2. Percentage distribution of individual permits by field of study

Overwhelmingly, most permits were granted in the humanities and social sciences. Permits in the field of humanities and social sciences rose from 2,783 in 2014/15 to 5,394 in 2023/24. This result demonstrates two main things. Firstly, the Science Technology and Innovation (STI) Act broadened the definition of research to include social science and humanities.¹ Also, the Data Protection Act law requires that all data collected be collected in a way that protects the privacy of the individual². Indeed, Wekesa³ observes that the regulation landscape for research in Kenya has improved tremendously. However, results of research in the humanities and social sciences do not usually lead to patentable innovations. Instead, these results in products that can be

¹ Science Technology and Innovation Act.

² Data Protection Act.

³ M Wekesa. (2015). Challenges in Regulation of Biomedical Research: The Case of Kenya. *Nigerian Journal of Clinical Practice*. <https://repository.daystar.ac.ke/items/c7e54bc7-fd05-4e3c-b6be-a3daeab24af2/full> accessed 7 June 2025

protected by copyright, trademarks, and sometimes, trade secrets. Hence, data from research permits in the social sciences and humanities were not processed further.

A prominent trend is the significant increase in research into Health and Biological Sciences. Between 2014-15 and 2023-24, the number of permits in this field increased from 258 to 2,112, which represents a percentage rise from 8.15% to 24.91%.

The number of permits for research in agriculture and natural resources increased from 43 in 2014-15 to 358 in 2023-24. From 60 permits (1.9%) in 2014-15 to 364 permits (4.29%) in 2023-24, ICT and Infrastructural Sciences likewise showed a steady increase in both absolute and relative terms, indicating growing interest in technology-driven research and infrastructure development. Permits for the Physical, Industrial, and Energy Sciences sector were consistently the fewest. The field increased somewhat from 15 permits (0.47%) in 2014-15 to 169 permits (1.99%). The physical, industrial, and energy sciences together with Earth and Space sciences do not appear to attract a lot of research interest. These are also fields that require expensive and sophisticated equipment that could be out of reach of research institutions in Kenya.

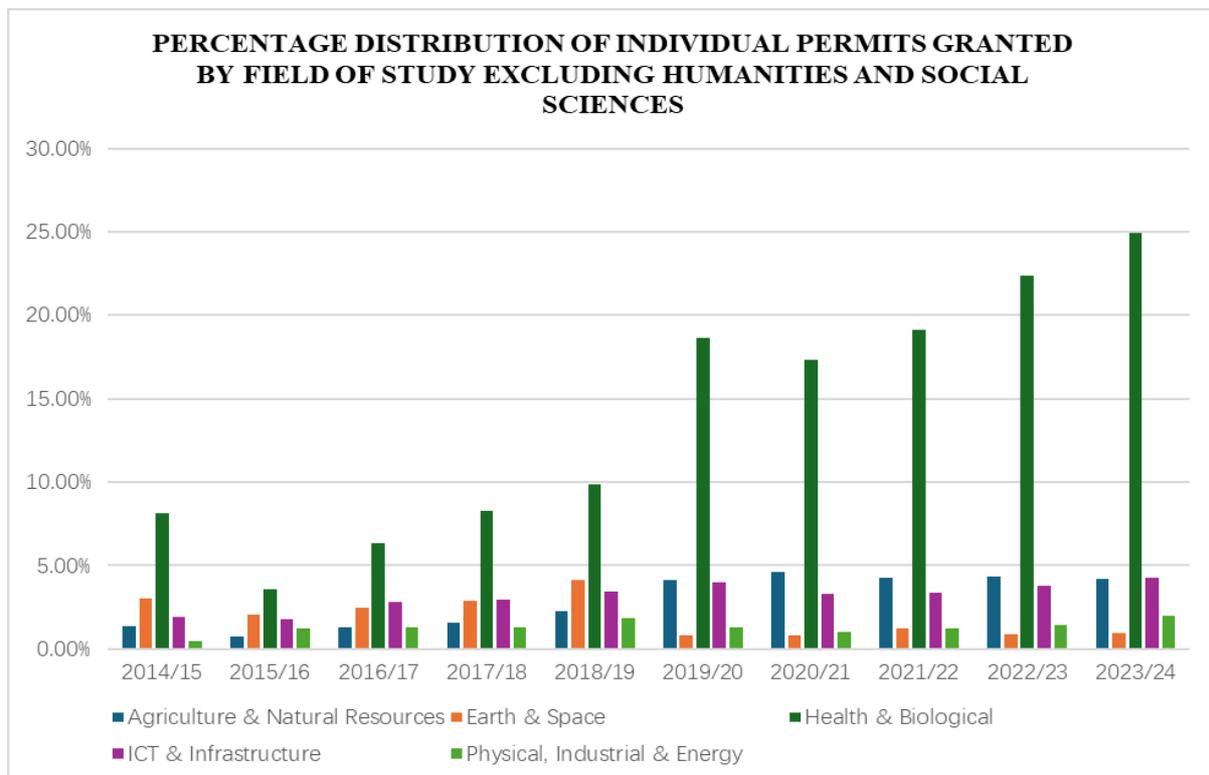


Figure 3. Percentage distribution of individual permits granted by field of study excluding humanities and social sciences

5.4 Total Patents Granted

The data presented in Table 4 displays the number of patents awarded in Kenya between 2014 and 2021, classified by applicant origin as resident, non-resident, or overseas. The total number of patents awarded each year has been relatively modest, ranging from 29 in 2016 to 82 in 2021 (see Table 4).

Table 4. Total Patents Granted

Year	Resident	Non-Resident	Abroad	TOTAL
2014	4	49	26	79
2015	1	23	24	48
2016	5	21	3	29
2017	11	32	8	51

2018	26		13	39
2019	5	23	19	47
2020	15	20	41	76
2021	14	22	46	82

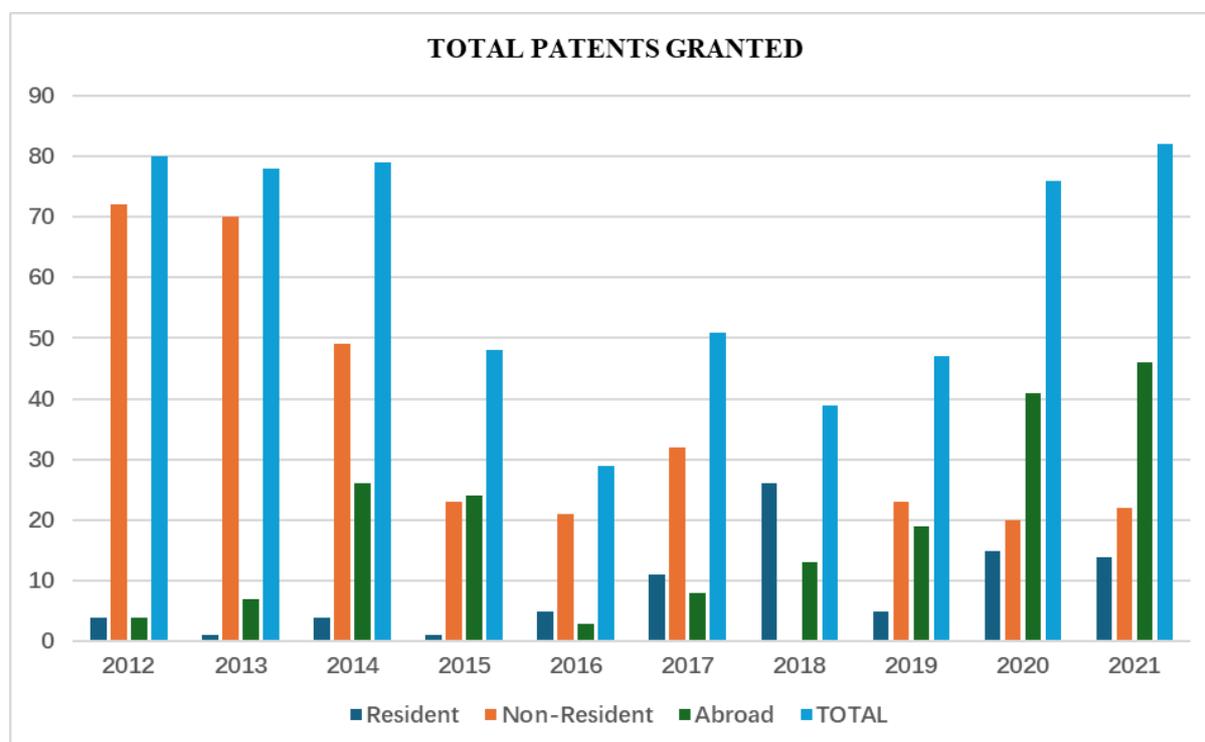


Figure 4. Total number of patents granted by nationality

The number of patents issued to Kenyan residents showed considerable improvements in 2018 (26 patents) and 2020 (15 patents). Despite this minor increase, resident patenting activity remains far behind overseas submissions. These results corroborate those of a nearly similar study carried out for the period 1998-2008, in which the researchers established that there was a low-level patenting activity, with very low patent applicants from universities. Even in the face of low patenting activity, 80% of those respondents in that study reported that they had innovations that were not protected.¹

Meanwhile, foreign applicants—those who register for protection in Kenya through international systems such as the Patent Cooperation Treaty (PCT)—show varying activity, with a strong increase in 2020 and 2021 (41 and 46 patents, respectively). This could represent Kenya's expanding relevance as a regional IP hub, or a growing global interest in obtaining patent protection within the country.

Most patents granted during the first half of the term (2014-2017) went to non-resident applicants. For instance, they were responsible for 23 out of 48 patents (47.92%) in 2015 and 49 out of 79 patents (62.03%) in 2014. Non-residents obtained 72.41% and 62.75% of all awarded patents, respectively, in 2016 and 2017. This dominance implies that foreign entities, most likely, multinational businesses or foreign inventors, were the main users of Kenya's patent system in order to protect their products within Kenyan territory. There is a gap in the domestic use of the patent system, as seen by the low level of patenting activity among residents throughout this time (for example, only one resident patent in 2015).

A notable change occurred in 2018, as resident applicants accounted for 26 out of 39 patents, or 66.67% of all patents awarded. That year's total lack of non-resident patents could be the result of administrative, procedural, or regulatory changes, or it could be the result of a brief decline in foreign patent applications. This increase in

¹ M Kiveu. (2012). Patenting in Kenya: Status and Challenges. Discussion Paper Series No. DP/141/2012, Kenya Institute of Public Policy Research and Analysis, KIPPRA Discussion Paper No. 141 of 2012 at <<https://repository.kippira.or.ke/server/api/core/bitstreams/9745ff1f-eea5-405d-ab84-e97b9ef2c2f5/content>> accessed 30 November 2025

resident activity could also be a sign of effective policy measures, including better access to filing procedures for local inventors, government support for innovators, IP training programs, or increased awareness.

The number of patents awarded to foreign applicants has been steadily and noticeably increasing since 2019. Foreign-sourced patents accounted for 41 out of 76 patents (53.95%) in 2020 and 46 out of 82 patents (56.10%) in 2021. This reflects the employment of international patent systems (such as the Patent Cooperation Treaty, or PCT) by foreign applicants to seek protection in Kenya and the dependence of Kenya on imports.

It has been observed that large amounts of scientific and technological research in public research institutions and universities go unused and are only used for academic recognition. Research efforts are not linked to the commercial application of the research results.¹ Stories from other countries point to a contrary image as research is used to create products, provide employment, generate income, and create special-purpose vehicles in the form of start-up companies. Such stories emanate largely from the USA, Europe, Australia, and parts of Asia.²

In a study on researchers in Kenya, eighty percent of the respondents had innovations that were not protected. They attributed this situation to a lack of knowledge on IP (81%), a long, tedious patenting process (63%) lack of R & D funds (57%), amongst others.³

Though the number of registered patents in Kenya is low over the period under review, it should be noted that some firms choose to obtain their patents outside in order to benefit from an international market. A survey by the Ministry of Higher Education, Science and Technology showed that whereas about 12.9 % reported having secured a patent in Kenya, 21.4 % of firms got it from outside the country. Even then, the overall numbers remain small.⁴

Of note is that non-residents obtaining patents in Kenya would have done their research elsewhere, away from the permit requirements in Kenya. Such data was therefore not processed further.

Publishing is said to be the disclosure to the public of an invention through a scientific journal or other means. Publications earn researchers' recognition in their fields. Publication places the invention in the public domain, thereby interfering with eventual patentability. Patenting is protecting an invention and requires that the invention not be in the public domain. However, after patenting, a researcher can still publish the invention in a known journal. Patenting is a process that takes longer than publishing. Therein lies the dilemma of many researchers: whether to publish or patent. Some researchers have referred to this as 'publish and perish', in other words, if you publish first, you perish economically.⁵ Accordingly, a publication is deemed to consist of any of learned papers, journals, magazines, abstracts, theses, job interviews, poster displays, internet, exhibitions, oral and casual disclosures, and confidential disclosures to many people.⁶

5.5 Regression Analysis of Research Permits Granted and Total Patents

Figure 5 shows the regression analysis of the permits vs the patents granted over a seven-year period (2014-2021). The independent variable is the total number of permits granted over that period, and the dependent variable is the total number of patents granted to residents. The permits and patent figures considered are for the Kenyan Nationals only, with the humanities and social sciences excluded from the total number of Kenyan permits since they do not result in patents.

Table 5 shows the percentage of patents in relation to research permits given in the sciences. This percentage varied between 0.4% to 2.1 with no indication of an increase in patents over the period under review. Generally, this table reveals a very low innovative activity in Kenya. This could be attributed to several factors including

¹ C Moturi and T Ogada. (2006). The Role of Research and Development in the Industrialization Process, Paper Presented at the Technical Workshop on Industrialization on Nov. 22, Nairobi.

² M Kiveu. (2012). Patenting in Kenya: Status and Challenges. Discussion Paper Series No. DP/141/2012, Kenya Institute of Public Policy Research and Analysis, KIPPRA Discussion Paper No. 141 of 2012 at <
<https://repository.kippira.or.ke/server/api/core/bitstreams/9745ff1f-eea5-405d-ab84-e97b9ef2c2f5/content>> accessed 30 November 2025

³ Ibid.

⁴ Ministry of Higher Education, Science and Technology, Kenya Innovation Survey Report 2012. <https://www.education.go.ke/sites/default/files/2022-05/innovation-survey-report.pdf> accessed 7 June 2025

⁵ University of Toledo, 'Publish and Perish: How Publications Affect Patentability' https://www.utoledo.edu/research/TechTransfer/Publish_and_Perish.html accessed 16 June 2025

⁶ Preethiya, 'Academic Dilemma – Publish or Patent the Idea?' (HelloLeads) <https://www.helloleads.io/blog/all/business-benefits/academic-dilemma-publish-or-patent-the-idea> accessed 16 June 2025

low awareness of intellectual property.¹ Wekesa et al. have indicated lack of awareness as a bottleneck in the overall conception of research. The lack of a ‘Triple Helix’ approach in Kenya means there is no strong drive towards innovation. The university culture of ‘publish or perish’ could mean that researchers in Kenya do not give innovation a serious consideration.²

Table 5. Total permits and patents granted

Total permits granted	Total patents granted	% of patents to permits
229	4	1.7
236	1	0.4
634	5	0.8
710	11	1.5
1,197	26	2.1
1,807	5	0.3
1,484	15	1.01
1,704	14	0.82

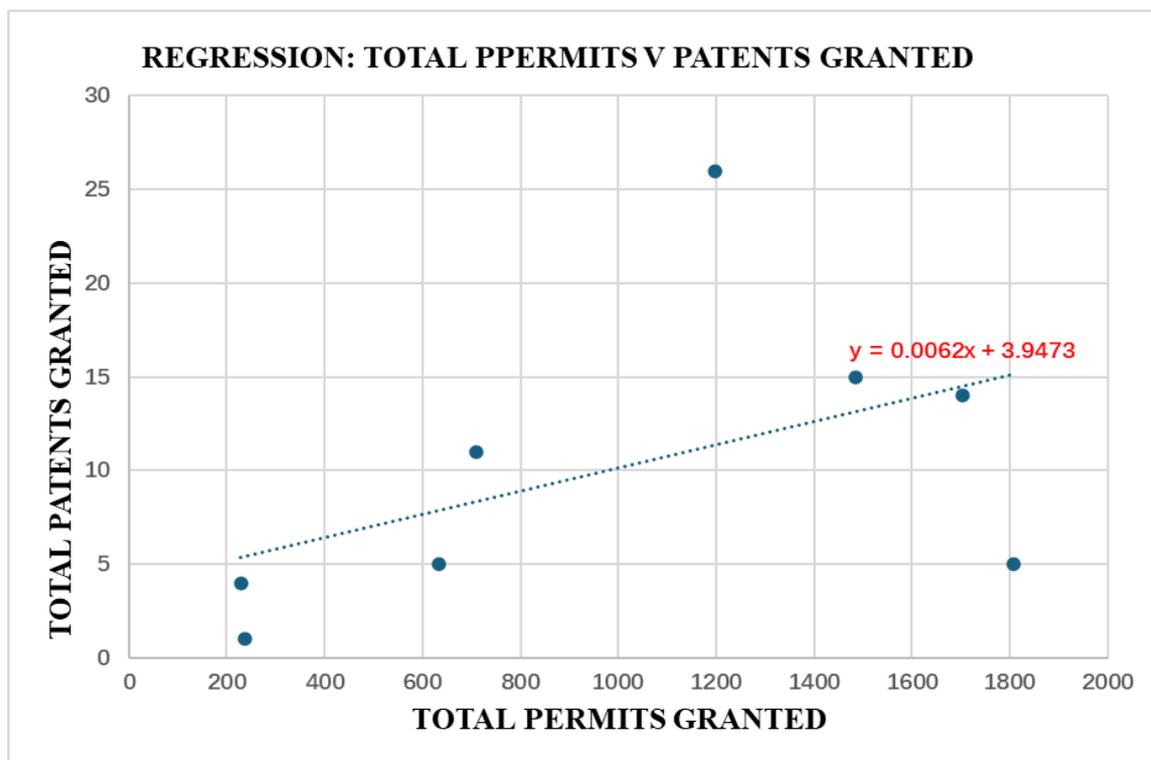


Figure 5. Regression graph of total permits granted v total patents granted over a 10 year period

The regression equation is $Y=0.0062X+3.9473$, where Y is the total number of patents granted (dependent variable), and X is the total number of research permits granted over the same period. The slope is **0.0062**. This represents the rate at which awarded patents (y) and permits (x) are changing. It indicates that the model forecasts a 0.0062 rise in patents for every additional permit. In practical terms, every 100 permits are likely to result in just roughly 0.62 additional patents, indicating a positive but very weak link. The overall number of patents tends to rise marginally as the total number of permits rises. The slope is modest, though, indicating that

¹ M Wekesa et al. (2024). Commercialization of Intellectual Property Rights at Universities as an Additional Revenue Stream. *Law and Economy*, 3(3), 37.

² Ibid.

permits have little impact on patents; significant increases in permits only slightly raise patents. The intercept of 3.9473 is the predicted value of Y when X=0 (no permits granted). The model predicts that even with zero permits, there could be around 4 patents granted. This can be explained by a ‘carry over’ effect due to delays in processing a patent. In other words, not all patent applications are completed within the year of application. This ‘carry over’ effect appears to go with the terrain given that many Patent offices have a backlog of applications.¹

Due to some institutional, cultural, and legal obstacles, only a small portion of the substantial amount of research produced by universities under official permissions is eventually turned into patents. One significant contributing cause is the general lack of intellectual property (IP) awareness among researchers, many of whom are not aware of the financial potential of their inventions, the prerequisites for obtaining patents, or what constitutes patentable subject matter.² This lack of information frequently results in early disclosures through conferences or papers, which might negate the novelty needed for patent protection. The problem is made worse by the academic culture of “publish or perish,” which encourages early disclosure for professional development even at the price of possible IP protection.³ Finally, not all scientific findings should or can be patented. Books, software code, and music that are protected by copyright are frequently the result of research in the humanities, social sciences, and creative arts. Trade secrets, utility models, or plant breeders’ rights may be produced by other domains. Furthermore, rather than producing innovative, commercially viable technologies, a large number of studies produce theoretical or incremental contributions to science.⁴ Nevertheless, patenting in Kenya is preceded by possession of a research permit.

6. Conclusion

The number of permits almost tripled from 3,343 in 2014-15 to 9,627 in 2023-24.

A regression analysis was undertaken to determine the association between research permits and patents granted, and it found a weak and slightly positive correlation. The equation $Y = 0.0062X + 3.9473$. The modest slope (0.0062) suggests that while Kenya has successfully expanded its research base, it has yet to build the processes required to translate research findings into patentable ideas or commercially viable technologies on a large scale. To summarize, Kenya’s research ecosystem has grown significantly in terms of participation and diversity. However, the low rate of translation from research permits to patents demonstrates significant shortcomings in the national innovation system. These findings highlight the importance of deliberate policy initiatives aimed at improving the research-to-innovation pipeline.

It is recommended that the government provide focused support for research with direct commercial, technological, or societal applications, particularly in underfunded but high-impact fields such as engineering, energy, ICT, and agriculture. Secondly, various stakeholders should provide workshops, short courses, and ongoing professional development to educate researchers on patent filing processes, intellectual property law, and innovative commercialization channels. Thirdly, there should be encouragement of collaboration among universities, research institutes, and private-sector enterprises to link academic research with real-world commercial demands. This raises the chances of producing patented and economically successful products. Fourthly, the government should set up a national research and innovation monitoring system to track research development from permit approval to patent registration and eventual commercialization. Fifthly, there should be an increase in institutional support for intellectual property (IP) management through technology transfer offices. Sixthly, future researchers should investigate whether research permits in the social sciences resulted in any intellectual property that could be commercialized.

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² WIPO, (2022). *Raising IP Awareness in Africa: A Call to Action.* <
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³ Preethiya, ‘Academic Dilemma – Publish or Patent the Idea?’ (HelloLeads) <
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⁴ J Taalbi. (2022). *Innovation with and without patents.* <
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