

**Sustainable Development for Africa  
through strategic change in Intellectual  
Property Law Policy, Engineering and  
Constitutional Law Reforms**

*By*

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**SAIEE Conference theme -**  
***Engineering an Africa for the future!***

**Presentation outline:**

- 1. The importance of IP and the proposed reforms for Africa;***
- 2. The proposed reforms in Engineering training & practice;***
- 3. The proposed constitutional reforms and the necessity for radical departure from the norm; and***
- 4. Recommendations and Conclusion.***

# The Intended Proposition

- *This submission makes a proposition on how a triad of initiatives may, together with other allied initiatives, sustainably propel Africa towards development...*
- *The triad comprise of strategic Intellectual Property (IP) Law reforms, Engineering Professions' training & practice reforms as well as Constitutional Law reforms ...*

# Questions begging for answers

- *Why is it that Africa and the African countries therein, which are well endowed with so much natural resources have not managed to substantially industrialise or to appreciably grow economically since their attainment of independence?*
- *Why is it that Africa with a comparable number of educated intellectuals as those in developed countries has not managed to translate that human capital into noticeable development?*

# Questions begging for answers

- *What is it that China and other fast developing Asian countries have done right to boost the development of their economies?*
- *What are the developed countries doing, which allows them to maintain their developmental lead and even increase it in some cases?*

# The possible answers

- *Needless to interrogate and re-state the obvious historical reasons such as the slave trade, colonialism and neo-colonialism in trying to explain why African finds herself in a state of underdevelopment...*
- *Yes, the debate on neo-colonialism is much alive, [1], but this submission is only looking at the possibility of IP policy reforms, engineering training & practice reforms, constitutional reforms and the action that needs to be taken in order to move Africa forward with speed.*

# The Asian “Miracles”

- *According to World Economic Forum, [2]:*
- *“...The odds of poor or middle-income countries achieving the stardom of the “Asian Miracles” within a generation or two, or even three, are small. Between 1960 and 2014, only 16 developing economies worldwide were able to vault into high-income status, and many of those were fortunate enough to have discovered oil or joined the European Union...”*

# The Asian “Miracles”

- *World Economic Forum further stated that, [2]:*
- *“...The “miracles”—such as Hong Kong SAR, Korea, and Singapore—as well as Japan, Germany, and the United States before them, veered from the standard growth recipes and instead aimed high. What they had in common was ambition, accountability, and adaptability. They strove to develop sophisticated industries that were far beyond their prior technological abilities and experience. They focused on building robust export-powered economies. And, they created fiercely competitive businesses...”*



# The Asian “Miracles”

- *World Economic Forum further stated that, [2]:*
- *“...Each of these countries built their economic reputations by being daring. They entered industries—computers, electronics, pharmaceuticals, transport, and machinery—where they had no previous experience and no reasonable expectation that they would succeed. But they did succeed beyond anyone’s dreams...”*
- *What can Africa do? Africa must extensively exploit existing patents in addition to creating new patents...*

# IP & Patents

## IP encompasses:

- ❑ Copy rights
- ❑ Trade marks
- ❑ Plant breeders' rights
- ❑ Patents
- ❑ Design Patents
- ❑ ...

## Patents & Design

### Patents:

- ❑ **Patents** - often protect the underlying idea of an invention. The protection is given to the inventor for 20 years in exchange for disclosure of the invention.
- ❑ **Design Patents** - generally protect the aesthetic and functional aspects of inventions.

# IP and economic development

- *IP (Intellectual Property) has become a new global currency and it is increasingly becoming a hinge to world trade, [3] - Zimmerman.*
- *The IP assets have in many cases superseded physical assets as the basis of corporate value, [4] - Bratic.*
- *In another publication in the European legal journal, [5] - Barrett, it was noted that, the huge growth in US patent and trade mark applications was in line with the growth in technological innovation, which also prompted enhanced productivity and the growth of US economy in the same period*

# IP and economic development

- *During the 1990's the economy driven by IP grew twice as fast as service industries and four times as fast as the manufacturing industry, [6].*
- *Between 1987 and 1997 the US copyright and patent industries increased their output at a rate of 5.8% per year compared to 2.8% per year for the other industries, and increased the number of jobs at a rate of 4% per year compared to 1.6% in the ordinary economy, [6].*
- *Between 1982 and 1992 the share contributed in US economy by knowledge-based industries increased from 21% to 27% of GNP, [6].*

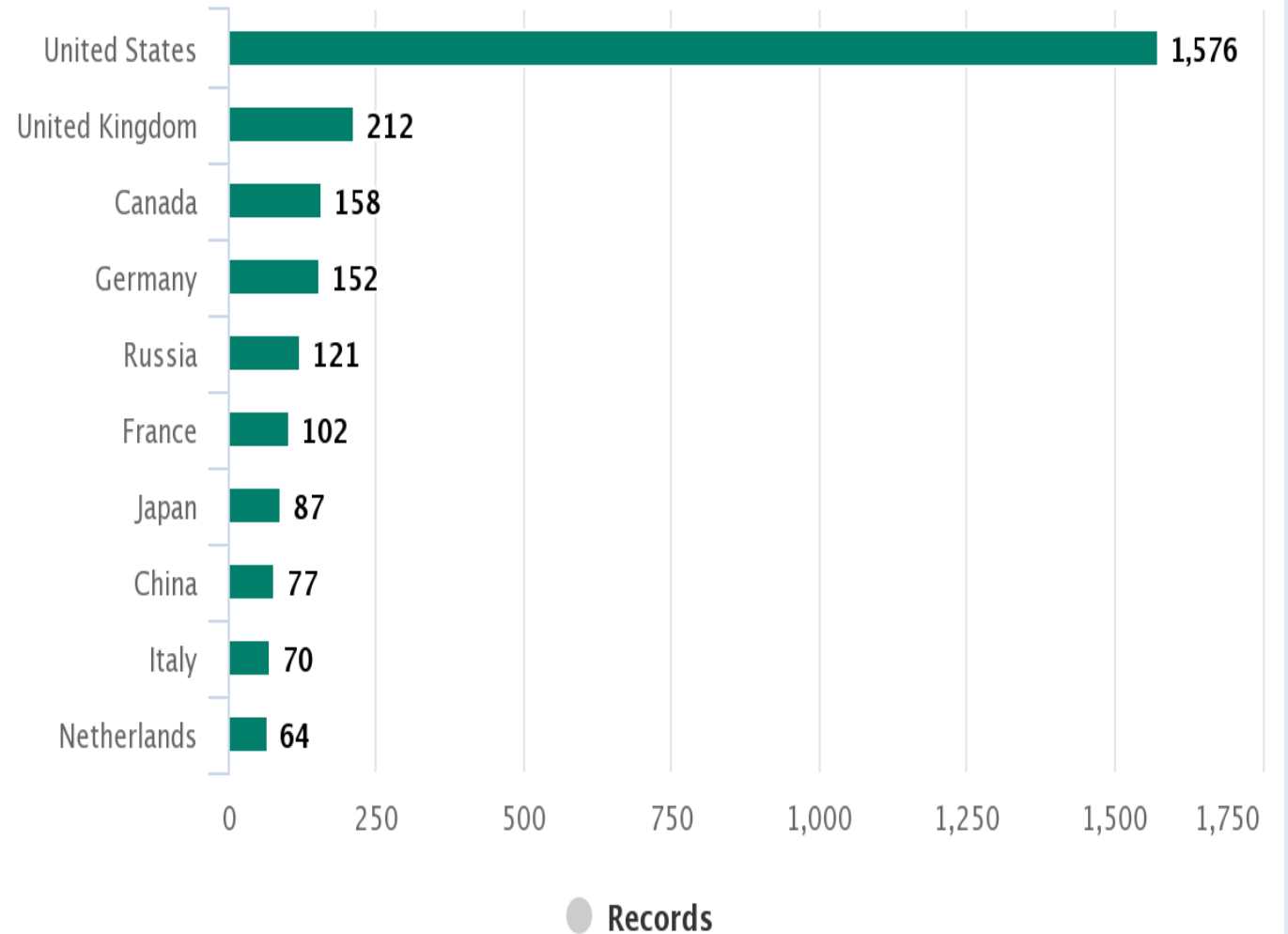
# **IP and economic development**

*The following four slides compare patents output of developed and developing countries since 1884.*

# IP (Patents) Recorded - Patents per country (1884 to 1999)

Search: ((Patents))

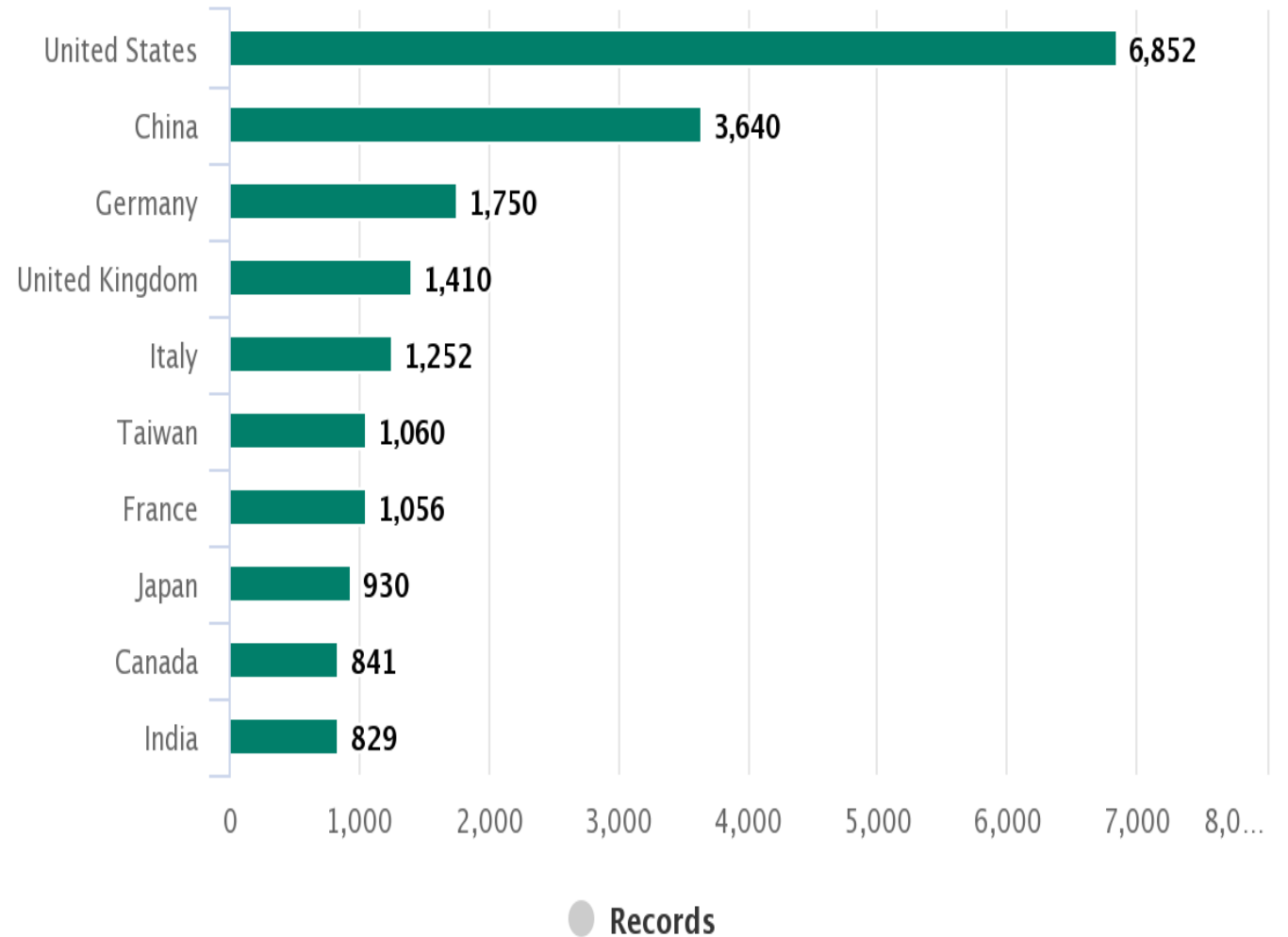
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# IP (Patents) Recorded - Patents per country (2000 to 2020)

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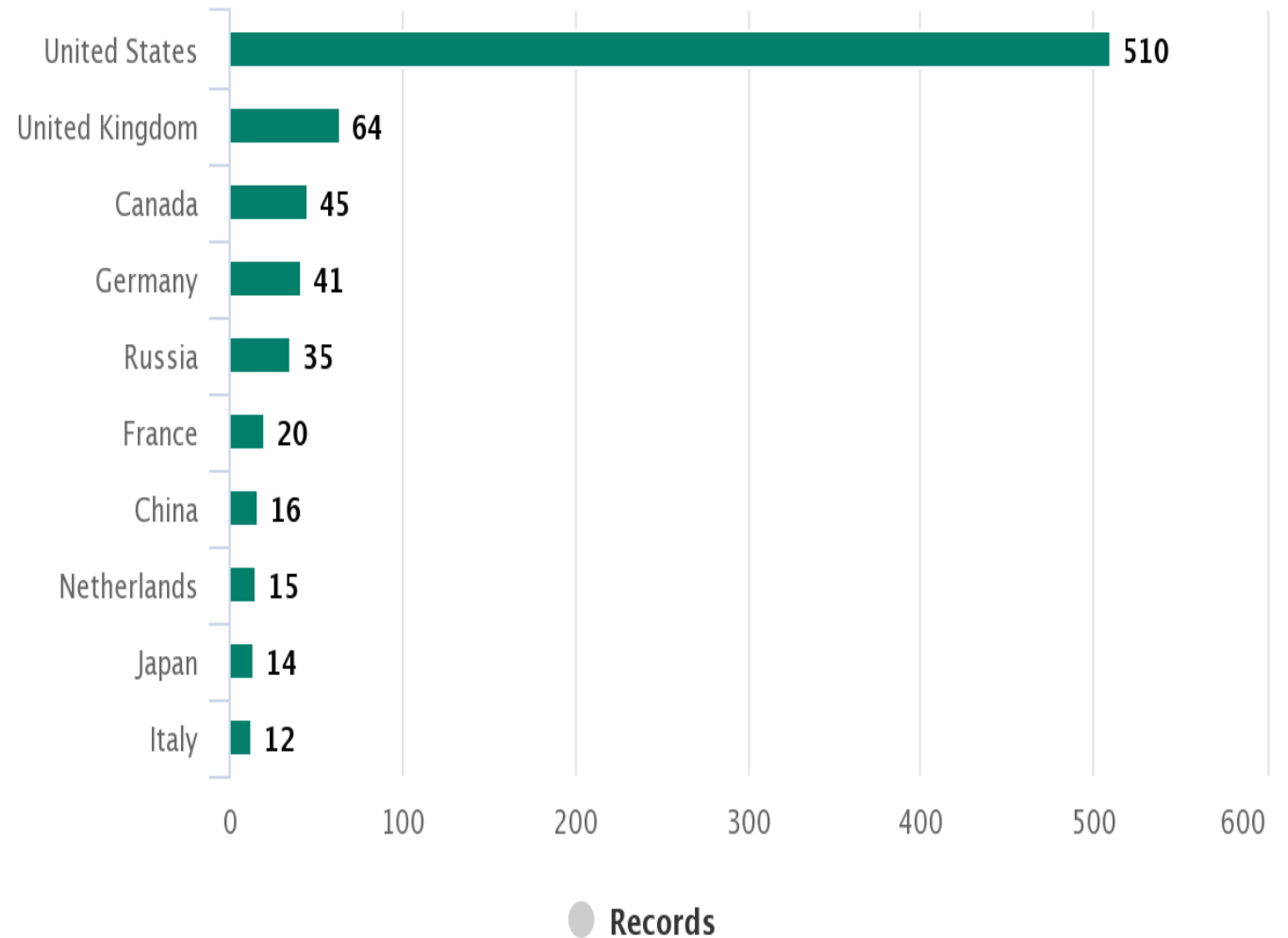
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**IP**  
**(Design Patents)**  
**Recorded -**  
**Design Patents**  
**per country**  
**(1884 to 1999)**

Search: (Design Patents)

Click to limit your results

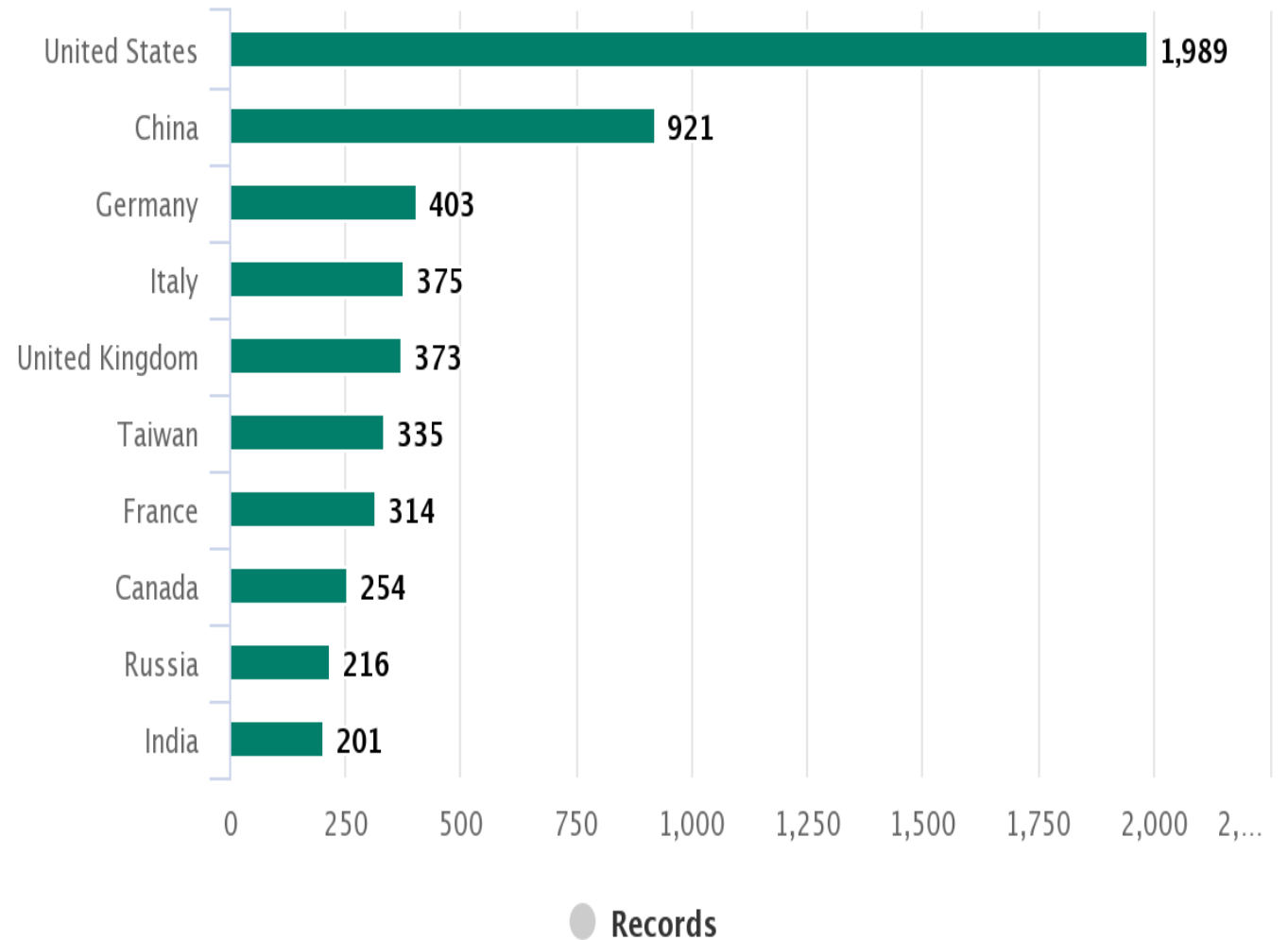




**IP**  
**(Design Patents)**  
**Recorded -**  
**Design Patents**  
**per country**  
**(1999 to 2020)**

Search: ((Design Patents))

Click to limit your results



# IP (Patents) Recorded - Patents per country – selected African states

## (1884 to 1999)

- South Africa – 7
- Egypt - 6
- Nigeria - 0
- Other African states - 0 or 1

## (2000 to 2020)

- South Africa – 114
- Egypt - 71
- Nigeria - 19
- Other African states - <5

# IP (Design Patents) Recorded - Patents per country – selected African states

## (1884 to 1999)

- South Africa – 1
- Egypt - 4
- Nigeria - 0
- Other African states - 0 or 1

## (2000 to 2020)

- South Africa – 41
- Egypt - 23
- Nigeria - 6
- Other African states - 0 or 1

# IP and economic development

*The comparisons of patents output in the previous four slides show that:*

- *Countries like China, which increased their patents output registered the fastest economic growth.*
- *The recorded patents from 1884 to 2020 total 38266, [7], but 30063 were recorded from year 2000 to 2020. This mean that about 79% of recorded patents were produced in last two decades. **The importance of patents and their exploitation (commercialisation) need not be emphasised any further.***

# IP (Patents) exploitation (commercialisation)

- *Inventors often exploit their patents (within the allowable 20 years protection period) by either licensing them out or by converting the patent into commercial products or systems.*
- *Once the 20 years has lapsed, anyone can freely copy and exploit the expired patent without adverse legal consequences.*
- *Why is that Africa appears not to be exploiting the available lapsed patents in strengthening and expanding her manufacturing industry?...*

# IP (Patents) exploitation (commercialisation)

- *Sadly, what is mostly observed at a substantial number of African Universities (engineering faculties) is just theoretical work and publication of journal articles with little or no attention to the possible IP content of the publication(s)...*
- *It is saddening to observe that, Africa has so many Professors and Doctorate degree holders in engineering some with more than 100 published articles, but without even a single patent or single research capable of commercialisation... at least, at local level...*

# **IP (Patents) exploitation (commercialisation)**

- *Africa needs to do both types of research: pure/theoretical research as well as applied research with a stronger bias towards applied research in engineering and other technical qualifications.*
- *Africa will need to diligently study both subsisting and lapsed patents with a view to legally exploiting lapsed patents in manufacturing her own goods in order to at least replace some imports with locally made products.*

# IP & Constitutional reforms

- *The brief IP value analysis presented above should leave no room for any reasonable doubt on the importance of IP in modern day economies.*
- *The analysis also makes it clear that Africa must act now and with a sense of urgency in a steady-fast manner on IP generation & exploitation.*
- *Since Governments come and go, and policies also change accordingly; **how then can a steady-fast action on IP generation & exploitation be maintained?***



# IP & Constitutional reforms

- *How can Africa ensure the so called “inter-generational justice”, [8]? As adopted from Rawls (1972), Africa (as all right-minded societies) owes its future generations a duty to act responsibly now so that future generations can inherit countries with better economies and the environment, of course.*
- *Some of the answers to these question may lie in IP and constitutional reforms that are radical and perhaps unheard of before...*

# IP & Constitutional reforms

The proposed reforms may include the following:

- ***Inclusion of an IP clause within national (African countries) constitutions. The IP clause could give direction to IP training, generation, protection, adoption, commercialisation, enactment of relevant national IP legislation to give effect to the IP clause, and other matters connected therewith. The inclusion of IP clause in the relevant constitutions naturally brings IP matters under Presidential responsibilities***

# IP & Constitutional reforms

The proposed reforms may include the following:

- *Inclusion of IP clause in a constitution may not be enough in ensuring that IP matters are given one of the topmost priorities in a nation. It is therefore further proposed that, for example, the IP commercialisation output measure is listed as one of the key functions of state Presidents.*
- *The IP legislation enacted following constitutional IP clause should set parameters for measuring state Presidents' performance on IP matters...*

# IP & Constitutional reforms

The proposed reforms may include the following:

- *In order to ensure that a sitting President acts accordingly in terms of the constitutional IP clause and the relevant IP legislation, would it not be reasonable to include “**failure to perform in IP matters**” as one of the grounds for impeaching a sitting state President? This question, indeed, requires much debate as it were...*

# The rationale for IP & Constitutional reforms

The rationale for the proposition on IP & constitutional reforms include the following:

- *Owing to the economic importance of success in IP matters, it is best served if the empowering provisions are ultimately and directly derived from the supreme law, national constitution (in constitutional democracies).*

# The rationale for IP & Constitutional reforms

The rationale for the proposition on IP & constitutional reforms include the following:

- *Since constitutions are usually more difficult to amend and tend to be more stable than ordinary legislation, empowering the IP matters from the constitution is bound to provide a steady and long lasting developmental agenda as compared to the present state of things.*

# The rationale for IP & Constitutional reforms

The rationale for the proposition on IP & constitutional reforms include the following:

- *There are mixed feelings among African liberation war political parties about handing over power to younger generations fearing that they would soon fall into trap of neo-colonialism, [1], and reverse the gains of independence. Constitutional clauses that are difficult to change may help allay this fear. Constitutionalising the IP matters may be one of those important clauses.*

# Engineering Training and Practice

- *In complementing IP & constitutional reforms, engineering fraternity and other allied technical fields need to take a central and a more active role in IP training, IP generation, IP protection, IP adoption, IP commercialisation, and actively advise and take part in in all relevant governmental decisions.*



# Engineering Training and Practice

The additional roles of Engineering fraternity may include the following:

- *In consultation with other relevant stake-holders, ensure that it becomes mandatory for all students studying technical courses at colleges and universities to do a course on patent law (IP). The rationale is that, by increasing the number of technical people who can read and study patents, we inevitably increase a chance of technical people finding legal variants of existing patents or come up with new patents all together;*

# Engineering Training and Practice

The additional roles of Engineering fraternity may include the following:

- Actively take part in systematically and legally identifying and targeting patents coming from within and outside for commercialisation (manufacturing) with a clear view of substituting identified and targeted imports. *“This exercise must be complemented with enactment of appropriate protective legislation for locally made products taking into account all binding conventions”;*

# Conclusion and Recommendations

- *Given the synoptic analysis of IP matters, it is without doubt that, IP matters are central to self-driven economic development and industrialisation of Africa and must be acted upon now rather than later. Frank debate and/or implementation must start now.*
- *For all technical fields, colleges and universities, more emphasis and greater weight should be accorded to applied researches inclined towards products and systems' development geared to replace imports with locally made products and systems.*

# Conclusion and Recommendations

- *All technical people must be trained in basic patent analysis in addition to technical training.*
- *All other actions that can further the IP training, generation, protection, adoption, commercialisation must be considered seriously and/or adopted as soon as possible.*

***Thank you!!***

# References

- [1] J. Babatola, SEMINAR PAPER ON NEO-COLONIALISM IN AFRICA  
[https://www.researchgate.net/publication/313666367\\_NEO-COLONIALISM\\_IN\\_AFRICA\\_A\\_PERPETUATION\\_OF\\_WESTERN\\_INTEREST\\_AND\\_SUBJUGATION\\_OF\\_AFRICA](https://www.researchgate.net/publication/313666367_NEO-COLONIALISM_IN_AFRICA_A_PERPETUATION_OF_WESTERN_INTEREST_AND_SUBJUGATION_OF_AFRICA)  
Accessed 2019/11/25
- [2] World Economic Forum  
<https://www.weforum.org/agenda/2019/11/all-the-way-to-the-top-industrial-policy-innovation-and-sustained-growth/>  
Accessed 2019/11/25
- [3] Zimmerman, C. S. (1999). Intellectual Property: the new global currency. Wilkhof.

# References

- [4] Bratic, W. M. (1998). Business discovers the value of Patents. *Managing Intellectual Property*, 72.
- [5] Barrett, J. R. (2000). What is driving patents and trade mark application filings. *EIPR*, 349.
- [6] Adams & Adams. (2011). *Practical guide to intellectual property law*. Johannesburg: Lexis Nexis.
- [7] Engineering village, Elsevier  
<https://www.engineeringvillage.com/search/expert.url?SEARCHID=c6ec4d63fe114864b890e1cc35b11fbf&COUNT=1&usageOrigin=searchhistory&usageZone=searcheslist>

Accessed 2019/11/24

# References

- [8] Rawls, J. (1972). A Theory of Justice. Oxford: Oxford University Press.
- [9]



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