Good practices on technology transfer regulations in emerging and developing countries: looking at the african and latin american context[1]

Buenas prácticas en la regulación de la transferencia de tecnología en países emergentes y en desarrollo: una mirada a los contextos africano y latinoamericano

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ABSTRACT

This article aims to explore good practices in technology transfer regulations in emerging and developing countries. Developing nations are undergoing a period of transition marked by geopolitical and economic instability. Rethinking technology transfer regulations is a key element in boosting the

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economy of the developing world. These countries not only need to attract the largest amount of foreign investment but must also focus on securing high-quality investments, especially in comparison to competitor countries. In this article, we will explore different approaches to technology transfer legislation with the objective of helping lawyers and policymakers understand recent advances in international trade and technology transfer law. Countries and legal professionals should integrate policy analysis and comparative analysis with neighboring countries to assess whether domestic legislation aligns effectively with national development programs. Technology transfer regulations in Egypt, Ghana, Costa Rica, Côte d'Ivoire, Colombia, and Namibia will be examined.

Keywords: Technology transfer, Developing countries, foreign investment, Legal regulations, Economic policy, international law, international trade.

RESUMEN

Este artículo tiene como objetivo explorar las buenas prácticas en las regulaciones de transferencia de tecnología en países emergentes y en desarrollo. Los países en desarrollo atraviesan un período de transición marcado por la inestabilidad geopolítica y económica. El replanteamiento de las normas de transferencia de tecnología es un elemento clave para impulsar la economía del mundo en desarrollo. Estos países no solo necesitan atraer la mayor cantidad de inversión extranjera, sino que también deben centrarse en asegurar inversiones de alta calidad, especialmente en comparación con países competidores. En esta medida, se explorará diferentes enfoques de la legislación sobre transferencia de tecnología con el objetivo de ayudar a los abogados y a los responsables de la formulación de políticas a comprender los avances y cambios recientes en el comercio internacional y el derecho de transferencia de tecnología. Los países y los profesionales del derecho deben integrar el análisis de políticas y el análisis comparativo con los países vecinos para evaluar si la legislación nacional se alinea efectivamente con los programas nacionales de desarrollo. Se examinarán las reglamentaciones en materia de transferencia de tecnología en Egipto, Ghana, Costa Rica, Côte d'Ivoire, Colombia y Namibia.

Palabras clave: Transferencia de tecnología, Países en desarrollo, Inversión extranjera, Regulaciones legales, Política económica, Derecho Internacional, Comercio internacional.

INTRODUCTION

Emerging and developing countries are grappling with a complex scenario characterized by geopolitical and economic uncertainties. The Russian invasion of Ukraine and the effects of the COVID-19 pandemic are disrupting global supply chains, leading to increased inflation, fiscal pressures, and heightened levels of debt and poverty in these regions (OECD, 2022).

In 2023, international organizations projected an average inflation rate of up to 15.5% for the African continent, the highest in 27 years (OECD, 2023). At the same time, social inequalities are on the rise in Latin America, with 33.7% of the population living below the poverty line and 14.9% in extreme poverty (OECD, 2022). Notably, Argentina recorded an inflation rate of 140% in November 2023, experiencing one of the most significant economic crises in decades.

Furthermore, several African countries are facing challenges in restructuring their debts. In February 2023, the International Monetary Fund identified eight African countries in debt distress, with an additional 13 at high risk of default. Amidst these challenges, international organizations are advocating for a transformative shift towards the "green transition" to combat climate change and reduce dependence on fossil fuels and non-renewable resources (OECD, 2023). Developing and emerging countries face the difficult task of restructuring their economies without sufficient funds for investments in green technologies, infrastructure projects, and social initiatives. According to UNCTAD, countries in Latin America, Sub-Saharan Africa are the least ready to use and adapt to frontier technology and are at risk of missing current technological opportunities for transformation (UNCTAD, 2023).

Despite these challenges, there is an opportunity to transition from traditional commodity export models to becoming hubs for industrialized clean energy industries. For instance, the African continent possesses 60% of the world's solar resources but accounts for only 1% of the world's installed solar generation capacity (OECD, 2023). Similarly, Latin America, with 40-50% of the world's diversity and 1/3 of global water resources, generates only 33% of its primary energy from renewables (OECD, 2022).

In this context, reevaluating models for technology transfer (TT) in the developing world becomes crucial. A clear understanding of technology transfer and its legal framework is imperative. Technology transfer involves the exchange of knowledge, skills, and industrial innovations from one entity to another, promoting economic development and innovation. According to the World Intellectual Property Organization (WIPO), "*Technology transfer is a collaborative process that allows scientific findings, knowledge, and intellectual property to flow from creators, such as private sector universities and research institutions, to public and private users. Its goal is to transform inventions and scientific outcomes into new products* *and services that benefit society. Technology transfer is closely related to knowledge transfer"* (WIPO, 2023). From a legal perspective, a technology transfer system encompasses combined regulations, policies, and mechanisms governing the transfer of technology and intellectual property rights between countries, public sector, and private sector, domestically and internationally.

It is crucial to highlight that, following the failure of the agreement on a common TT code of conduct between developed countries and the emerging and developing world promoted by UNCTAD since the 1970th, rethinking innovative models of effective technology transfer becomes a central question for development. Moreover, as social, economic, and political challenges persist on the geopolitical stage, international organizations and developed countries are advocating for a global shift towards sustainable practices and production. However, developing countries face the dilemma of how to navigate these transitions without the necessary resources. The focus must shift towards leveraging competitive advantages to implement technology and industrialized sustainable economies. The pivotal question remains: Will these countries continue as commodity exporters or embrace technology to shape a sustainable economic future?

Beyond addressing individual initiatives, this document aims to showcase technology transfer regulations in selected African and Latin American countries. While some African nations still operate with outdated regulations from the 90s based on the UNCTAD code of conduct model, others are actively modernizing their technology transfer systems. The proposal for a unified and voluntary T.T system involves creating central entities or expanding existing ones, integrating technology transfer competencies across the public and private sectors, and removing barriers for foreign investors. The specific decisions, however, require thorough local political analysis.

For example, Nigeria, Cote d'Ivoire, and Egypt exhibit different approaches to their technology transfer legal frameworks. Despite differences, they have established coordinated systems with the implementation of Technology Transfer Offices (TTOs) in Africa specializing in internal and external technology transfer. Similarly, successful countries like Costa Rica, although in a different region, provide valuable lessons in attracting significant foreign direct investments.

Developing countries are in a race to prepare for the green and digital transition (OECD, 2022). Identifying competitive areas for technology transfer and investment is crucial for success and sustainability. As an illustration, digital services, green technologies, and infrastructure are deemed high-value investments in the coming years in developing countries (OECD, 2022).

Therefore, understanding investment priorities and studying the approaches of other investment agencies, such as Namibia's Investment Promotion Centre and Development Board, is vital for developing countries. This document aims to provide guidelines on the subject, proceeding to explain the concept of Foreign Direct Investment (FDI), Investment Promotion Agencies, and their correlation with Technology Transfer Offices (TTOs).

In conclusion, identifying a coordinated technology transfer mechanism and prioritizing areas for investment is indispensable for the developing world economy. This document seeks to contribute valuable insights to guide policy transformations, considering best practices in the African and Latin American regions.

1. Competitive advantages and FDIs high value investments

A primary means of attracting FDIs is leveraging the host country's special conditions or competitive advantages and developing a regulatory framework that is attractive to foreign investors. Those special conditions or competitive advantages may include such things as natural resources, political stability, security, labour costs, and infrastructure.[3] In practice, the investor assesses those special conditions and the legal framework of the country and compares them with the offer of the competing countries. In this context, the key to attracting FDI lies in the ability to offer superior benefits compared to both the investor's requirements and those offered by competitors.

Strategies to Attract FDIs: Dual Strategies

To achieve these objectives, countries adopt dual strategies to attract FDIs. Firstly, they may implement passive policies, providing equal market access conditions to foreign investors. Alternatively, they adopt active policies, particularly when they face a lack of competitiveness in a sector or the overall economy. Active policies involve coordinated mechanisms, including incentives, sector targeting, and support activities for foreign investments (Giglo, Nicolo. ECLAC, 2007)[4].

Success of Passive Policies

While passive policies have proven successful in attracting Foreign Direct Investment (FDI) by providing equal treatment and facilitating market access

3 See OCDE: FDIS quality policies ToolKIT. *"Policies for improving FDIS impacts on productivity and innovation. "The magnitude and direction of FDIS impacts depend on contextual factors, including the structure of the economy, the type of FDIS that a country attracts, the capacity of domestic firms, in particular SMEs, to absorb knowledge from foreign firms, and economic geography factors"* (2.2.3) (OECD, 2023)

4 Costa Rica is one good example of a country with passive policies as the country didn't adopt a special regime for foreign investors as in other countries (OEA, 2023). Moreover, Spain was a successful example in 2001 of passive policy implementation as was a country with low productivity in comparison to his neighbours but was the 8th receptor of FDI in the world for that period (Giglo, Nicolo. ECLAC, 2007).

for foreign investors, they are often deemed insufficient on their own. Active policies play a crucial role in bridging the gap between competing countries, especially in attracting high-technology and greenfield investments. These policies require a sophisticated legal framework, an active role of the state, and coordination among various stakeholders and institutions (Giglo, Nicolo. ECLAC, 2007).

Enhancing Passive Policies with Active Measures: Bridging Gaps

Mostly, passive policies are successful to attract investments in natural resources or corporations interested in expanding to the local/regional market (Giglo, Nicolo. ECLAC, 2007). However, countries focus not only on the amount of FDI but also in the type and quality of the investment to develop strategic areas of the economy. Attracting high technology and green Greenfields investments require sophisticated, active, and coordinated policies (OECD, 2022)[5].

Strategic Focus Beyond FDI Amounts: Quality Over Quantity

Countries, recognizing the importance of not only the quantity but also the type and quality of investments, focus on developing strategic areas of the economy. Negotiations with investors become essential, especially in competitive conditions[6]. Prioritizing quality investments over quantity emerges as a strategic approach. exemplified by Mauritius' pursuit to become the most competitive and innovative country in the Africa Region (WIPO, 2023).

Example of Estonia's Active Policies: AI in Action

As an example of innovative approaches of active policies, during the pandemic, Estonia's Investment Promotion Agency (IPA) implemented an Artificial Intelligence (Suvechatbot) mechanism. This innovative approach provided continuous and timely attention to investors, resulting in the attraction of significant FDI flows (Granados & Arias, 2020).

5 See ECLAC (2007, *Ibídem*, p. 10) Translation made by the author from Spanish: *"In general, passive strategies may be sufficient to attract investments from companies whose objective is to seek attractive markets and natural resources. In this case, the success of the policy is measured mainly by the amount of investment flows. The global trend, however, is to move towards increasingly sophisticated policy frameworks, in which it is no longer only the amount of flows that is important, but also the type of investment, i.e., "greenfield" investments. i.e., "quality" investments that contribute to and are consistent with the countries' economic development objectives. While there are multiple strategies and emphases concerning FDIS attraction, the countries that have been most successful in attracting this type of investment are those that have adopted more active policies to attract FDIS (Europe, Asia)".*

6 See ECLAC (2007. *Ibídem*, p. 27). Active Policies. Specific Policies for FDIS attraction.

Market Entry Restrictions in Africa: Shifting Trends

In Africa, there are instances of evolving market entry restrictions. Some countries still impose restrictions, mandating foreign corporations to contract a minimum percentage of national employees[7], a practice reminiscent of past discussions related to the UNCTAD TT code of conduct in developing countries (1960-1990). However, progressive changes, such as those seen in Cote D'Ivoire and Nigeria, signal a shift in the approach to technology transfer models in developing countries in Africa. Cote D´Ivoire in 2018 launched its new investment code eliminating requirements in many sectors for mandatory local quotas requirements aiming to modernize its legislation[8]. Similar to Cote d´Ivoire, Nigeria have eliminated minimum quotas or nationality requirements for employees in the retailing or transportation sectors.[9] This trend could be interpreted as a change of TT model approach in developing countries.

Investor Preferences and Legal Restrictions: Decision-Making Factors

The effectiveness of various Technology Transfer models is influenced by legal restrictions. When comparing countries with similar conditions, an investor is likely to choose a destination with fewer market restrictions and mandatory requirements. Nigeria and the Ivory Coast, with more attractive legal frameworks in the West Africa region, become appealing to investors seeking favourable conditions for foreign investments.

Emphasis on Collaborative Competitiveness: Insights for Developing Countries

Addressing the challenges of competitiveness, developing countries need to collaborate to maximize their opportunities. African countries could benefit adapting their trade policies to take advantage of the African Continental Free Trade Area (AfCFTA) which aims to strengthen regional trade. Also, African countries could access to programs as the Digital Energy Facility, financed by the European Union and implemented by the French Development Agency,

7 See World Bank, (N.A) "Trade regulatory data set", "trade regulatory policy summary" and "services trade restrictions". Accessed on 3/05/2023. Ghana practical example. (World Bank, N.A).

8 The Ivory Coast. Ordonnance No 2018-646 1 August 2018. (The Ivory Coast 2018).

9 See World Bank, "Trade regulatory data set", "trade regulatory policy summary" and "services trade restrictions" (2011) World Bank.

that supports the modernisation of the energy sector in Sub-Saharan Africa[10]. Therefore, identifying competitive areas in the country and best legal practices can also be reached by international cooperation and regional opportunities that can be taken into consideration by policy makers.

Beyond Competitive Sectors: Inclusive Legal Frameworks

Besides, identifying competitive sectors is not sufficient for attracting foreign investments. A social and inclusive legal framework can create thousands of jobs and attract foreign investment. In fact, green investments could create 10,5% new jobs in Latin America and the Caribbean in a high impact scenario according to OECD (2022) predictions. Moreover, inclusiveness could promote the potential of FDI as for example in Africa 7% of investment capital in emerging markets is targeted towards female-led businesses, while more than 70% of women-owned small and medium-sized enterprises (SMEs) have inadequate or no access to financial services (OECD, 2022). In other worlds, identifying potential competitive sectors of the economy could promote an effective environment for Technology Transfer.

Addressing Inequalities in Internet Connectivity: A Consideration for Successful Digital Investments

Finally, policies and legal framework identifying prioritize areas of foreign investments must take into consideration domestic inequalities. In 2022, approximately 2.7 billion people was not connected to the Internet (International Telecomunications Union, 2022). In Africa, 70% of young people live in rural areas, yet only 26% of African rural population have access to the Internet. Investments in Digital sectors and the new technology economy would be only successful if policies aiming closing the gap in education and access to technology services is reached. In in Africa mobile network operators (MNOs) expected to invest USD 73 billion between 2020 and 2025, therefore policies and legislation aiming improve the countries offer and conditions could be prioritised (OECD, 2022)[11].

10 OECD. (2022) *Key messages: EMnet Working Group on Green Economy in Emerging Markets Accelerating the Green Energy Transition in Times of Crisis*, p. 4.

11 OECD (2022), *Key Messages EMnet Working Group on Digital Transformation in Emerging Markets 2022: The future of digital transformation in emerging markets*, p. 4.

Private Sector Perspective on Economic Uncertainty: Mitigating Risk

Finally, it is important to highlight that, due to economic uncertainty, developing countries have limited influence in reducing the current global economic uncertainty marked by a geopolitical game involving developed countries, Russia, and China (OECD, EMnet, 2023). In the absence of a common voice among emerging countries on the international stage, governments can only reduce domestic risk perception by improving adherence to the rule of law, providing guarantees for foreign investors regarding political stability, ensuring contractual commitment from the state, and enhancing the efficiency and independence of the judicial system, among other factors (OECD, EMnet, 2023).

2. Investment Promotion Agencies (IPAS) and FDIs

An effective Investment Promotion Agency (IPA) is a useful tool to attract and grow investments. Such entities could help maximize the benefits for the local economy facilitating job creation, trade integration, and the transfer of technologies and know-how.

Common Functions of IPAs:

Comparative studies carried out by the World Association of Investment Promotion Agencies (WAIPA) show that four are main functions common to every IPA, namely: image building; investment generation; investment facilitation, retention and aftercare and policy advocacy.

Image Building:

More specifically, image building consists of fostering a positive image of an area while helping to fight potential negative impressions that the world community might have on a specific market, and in branding the country as a profitable investment destination. As stated in the Foreign Investment Advisory Service (FIAS)[12] in 2004, the creation of focused advertising and information campaigns on the place, the organization and participation to

12 The FIAS is a joint facility of the International Finance Corporation (IFC) and the World Bank which was established to help governments of developing member countries to review and adjust policies, institutions, and programs that affect foreign direct investment. Its ultimate purpose of FIAS is to assist member governments in attracting beneficial foreign private capital, technology, and managerial expertise. Publication of FIAS Occasional Papers was however discontinued in 2004.

public relations events, and the generation of favorable news reports by journalists are just some of the activities normally associated with this function.[13] (Morisset, J. and K. Andrews-Johnson, 2004).

Investment Generation:

Continuing with the core IPA´s core competences, Investment generation, refers to the targeting of specific sectors, markets, projects, activities, and investors, in line with national priorities through the use of direct marketing techniques aimed at presenting information on and promoting the country. Activities include identification of potential sectors and investors, direct mailing, telephone campaigns, investor forums and seminars, and individual presentations to targeted investors. The aim is that of creating investment leads[14].

Therefore, IPA´s investment generation needs to focus in attracting investors aligned with national priorities for development. Some priorities that UNCTAD identifies for emerging and developing countries are in the twin digital and green transition, the so-called green tech revolution, covering frontier technologies such as AI, the internet of things and electric vehicles (UNCTAD, 2023).

Investment Facilitation, Retention, and Aftercare:

Thirdly, regarding the competence "investment facilitation, retention and aftercare", the IPA´s task concerns the services provided in a host country that can assist an investor in analyzing investment decisions, establishing a business, and maintaining it in good standing. Activities in this area include information provision, "one-stop shop"[15] services aimed at expediting approval process,[16] and aiding in obtaining permits, licenses, certificates, or clearances needed for the commencement of business.

Policy Advocacy:

Finally, the competence policy advocacy relates to the identification of bottlenecks in the investment climate and to the provision of recommendations

13 K. Andrews-Johnson-J. Morisset, *The Effectiveness of Promotion Agencies at Attracting Foreign Direct Investment*, p. 7.

14 K. Andrews-Johnson-J. Morisset, op. cit., p. 7.

15 In general, a one-stop shop is a place or agency that offers a range of products or services under one roof. The term relates to how many stops or points of contact customers need to make to satisfy their needs. Ideally, the customer makes just one stop. This would reduce costs while improving efficiency and coordination.

16 K. Andrews-Johnson-J. Morisset, op. cit., p. 7.

to the government aimed at solving the problems faced by foreign entrepreneurs while investing in the country. Activities include surveys of the private sector, participation in task forces, policy and legal proposals, and lobbying.[17]

Specialized IPAs:

Nevertheless, most IPAs around the world rarely concentrate exclusively on this core mandate: this is the case of some African and Latin American countries, where the empowered not only to actively encourage, promote, and facilitate investments in the country, but also to register, monitor and keep records of all enterprises, as well as to register and keep records of all technology transfer agreements.

However, the World Bank Group's *Global Investment Promotion Benchmarking*[18]*(2011) evaluated* the performance of 181 national IPAs and found that those agencies focusing exclusively on investment promotion and facilitation tend to achieve significantly higher results in attracting investors than those carrying out both regulatory/administrative and promotional activities.

The study noted that an IPA is ultimately expected to represent private investors' interests within the government, and it might risk being less credible in doing so and in concretely influencing policymaking on their behalf if it was the same agency regulating them in the first place.

In addition, the needs of investment promotion greatly diverge from those of FDI's regulation/administration: firstly, promotion involves a customer-oriented approach, while regulation focuses on procedures. Secondly, successful promoters need to have deep knowledge of the private sector and mirror its culture and capabilities to successfully market investment locations.

Finally, working with a view of attracting investment requires the staff to have an extensive understanding of marketing and sales, as well as major customer relationship skills; while, on the other hand, those people tasked with regulating/administrating FDI are expected to have a more administrative mindset and good acquaintance with legal and financial issues.

Moreover, in 2020 the Global Investment Promotion Agencies Survey jointly carried out by the World Bank Group (WBG) and WAIPA[19] confirmed that the more an IPA has a clear and uncontested mandate on investment promotion, the more its effectiveness will increase.

One example could be the National Investment Promotion Agency (ANAPI) of the Democratic Republic of Congo. ANAPI has been evaluated as the third best African IPA of 2022 and, in accordance with the laws

17 K. Andrews-Johnson-J. Morisset, op. cit., p. 7.

18 (World Bank, 2009) World Bank, *Investment Regulation and Promotion: Can They Coexist in One Body?*

19 (World Bank, 2020)World Bank, *State of Investment Promotion Agencies: Evidence from WAIPA-WBG's Joint Global Survey*, p. 11 et seq.

governing the agency,[20] its missions only comprise the promotion of the positive image of the Democratic Republic of the Congo and of specific investment opportunities, the advocacy for the improvement of the business climate in the country (after-care), and the administrative support for investors who decide to establish or expand their economic activities on the national territory.

In light of the identified success in the DRC, emerging and developing countries could consider creating a new National Technology Transfer Agency[21] with broader and more comprehensive supervisory powers. Such an agency could be charged with overseeing the registering, monitoring, and keeping of records of both enterprises and technology transfer agreements on a volunteer base. A separate entity with focusing exclusively on Technology Transfer and administrative procedures could allow IPA´s of emerging and developing countries concentrate on its only objective of attracting large amounts of FDI in prioritized high value areas for development.

Importance of Policy Advocacy:

Notwithstanding the above, another way to improve the effectiveness of IPAs relates to the devotion of a larger share of resources to policy advocacy, instead of investment generation and allocation. Policy advocacy has in fact proven[22] to be the IPAs' function allowing for the greatest attraction, retention, and expansion of FDI, and with the highest positive development impact[23].

The reason for this finding is that taking advantage of the direct, day-to-day, contacts that IPAs have with investors to gather meaningful insights and information and prepare well substantiated analysis of market and policy failures, draft position papers, as well as to promote recommendations for impactful reforms specifically aimed at improving the investment ecosystem, is paramount for the creation of an investor-friendly environment which will not only make current investors more inclined to keep investing in the country, but, above all, enable broadening interest from new foreign investors.[24]

20 Namely, the Law n° 004/2002 of February 21, 2002, on the Investment Code and the Prime Minister's Decree n° 09/33 of August 08, 2009, on the statutes, organization and functioning of ANAPI.

21 E. Osei, *Analysing the Legal and Regulatory Framework of Technology Transfer Regimes in Developing Countries: the Case of Ghana*, University of Pretoria, p. 76.

22 K. Andrews, Johnson, J. Morisset, op. cit., p. 6 et seq.

23 C. Griffin, Z. A. Rogatsching, WBG, Investment Promotion Agency Advocacy for Investment Climate Reform: Good Practice Principles and Case Studies, p. 1.

24 Unsurprisingly, A. Heilbron and H. Kronfol, in chapter 5 of the Global Investment Competitiveness Report 2019/2020, show that investors consider advocacy to be the most important service offered by IPAs.

Strengthening IPA Advocacy Services Global Competition:

In this respect, and order to collect and disseminate IPA advocacy success stories, raise awareness and inspire more IPAs to play a stronger role in advocating for reforms, in 2021, WAIPA, together with the World Bank, launched the first annual "Strengthening IPA Advocacy Services Global Competition"[25] to find and award international best practices of IPAs effectively implementing advocacy services which eventually led to the successful reform and improvement of the investment ecosystem for foreign investors in their respective cities, regions or countries.

Ethiopian Investment Commission Success Example

An example of success is the Ethiopian Investment Commission (EIC), an autonomous government institution representing the country's lead agency for investment promotion of foreign companies; the Commission is accountable to Ethiopian's Investment Board, which is chaired by the Prime Minister, and headed by a commissioner who is also member of the Board.

The EIC is responsible, among the other things, to register (investment related) TTAs.[26] Conversely to other countries such as Ghana, however, the potential non-registration of such agreements does not render them effectless in the eyes of the law: they will be binding between the parties, but they won't benefit from, among others, privilege of remittance of foreign currency available for registered agreements.[27]

In any case, the "Strengthening IPA Advocacy Services Global Competition" was not the first contest won by the EIC: in 2017, it had already received the "United Nations Award" for outstanding performance in targeted promotion, facilitation and execution of sustainable investment projects and, a year later, it was also awarded the "Best Investment Promotion Agency in East Africa" by the Annual Investment Meeting[28].

25 World Bank, December 10, 2020 – October 21, 2021, Strengthening IPA Advocacy Services 2021 Awards, https://www.worldbank.org/en/events/2020/12/10/strengthening-ipa-advocacy-services-2021-awards

26 The signed technology transfer agreement with the relevant documents and a signed application form shall be presented for registration with EIC. EIC shall render a decision to approve or reject within 30 (thirty) working days having conducted the necessary review.

27 B. Haile, Regulation of Technology Transfer Agreements in Ethiopia in Light of the WTO Framework, WIPO-WTO Colloquium Papers, 2018 Africa Edition, p. 26 (B. Haile, 2018)

28 International Trade Centre, Ethiopia: Sustainable Investment Requirements, p. vii (International Trade Center, 2021)

In 2021, however, it has been the Commission's ability to use its advocacy services in order to put an end to a period of decline (both in terms of GDP growth and of annual FDI inflows) in about a year, which was rewarded[29].

In greater detail, the EIC firstly undertook a series of diagnostic and benchmarking studies in partnership with the World Bank and the International Finance Corporation (IFC)[30] to see how the country's investment policy and sector regulation compared to international best practices. In so doing, the issue analysis came with recommended solutions, and both the analysis and recommendations had inherent credibility as the products of internationally recognized, third-party experts.

Secondly, a technical working group composed by EIC's staff and other members was established and tasked with processing the assessments, getting at root causes, and formulating the most appropriate solutions for the country.

The findings and recommended solutions were then presented to several investor groups with the aim of validating the proposals as likely to generate the intended FDI outcomes, and only after the mentioned validation, the EIC started advocating a revision of the national investment law with the Ethiopian Investment Board, its own supervisor.

After having gained the Board's approval, the EIC understood that going directly to the parliament would have not been sufficient to achieve the fullest implementation of the proposed reforms: before the passing of the law, it was necessary to start a consultation procedure with interested stakeholders from the private sector and civil society having legitimate reasons for preferring the status quo and earn their buy-in.

To this end, the Commission held various consultation workshops for public and private stakeholders, heard their concerns and brainstormed on the fine details needed for the law and subsequent implementing regulations.

Eventually, the EIC achieved not only passage of Investment Proclamation No. 1180-2020, which included the advocated changes, by April 2020, and its implementing regulations five months later, but also a widely shared enthusiasm for their implementation and the FDI benefits they would afford the country.

Achieving Positive Results:

As a matter of fact, according to UNCTAD's World Investment Report 2022, FDI inflows to Ethiopia increased to USD 4.2 billion in 2021, up from USD 2.4 billion one year earlier.

29 C. Griffin, Z. A. Rogatsching, WBG, op. cit., p. 14 et seq.

30 IFC, a member of the World Bank Group, is a global development institution focused exclusively on the private sector. Its mission is advance economic development by encouraging the growth of private enterprise in developing countries through the investment in companies through loans, equity investments, debt securities and guarantees; the mobilization of capital from other lenders and investors through loan participations, parallel loans and other means; and, the provision of advice to businesses and governments to encourage private investment and improve the investment climate.

The Ethiopian experience thus appears to be the perfect example on how even IPAs with a broader mandate can achieve startling results and improve their country's business climate just by taking good advantage of the privileged relationship these (public) agencies have with the private sector.

Political Environment and Initiative:

Nonetheless, political environment and initiative are indispensable in developing countries to achieve a long-term change of scenario for attracting Foreign Direct Investment (FDI). As a practical example of political inefficiency in attracting FDI and seizing international opportunities, we can highlight the lack of commitment by many Investment Promotion Agencies (IPAs) in developing and emerging countries to participate in international events.

As an illustration, consider the Africa Investment Meeting 2023 organized by the Emerging Market Network of the OECD Development Center, in which I personally served as a co-organizer. While nine African countries were part of the governing board, there was no representation from any African IPA. The purpose of the meeting was to bring together high-level representatives from the private sector interested in investing in the African region. However, not a single African IPA was present on the day of the event.

This example underscores a recurring issue where there is an observed lack of emphasis on profit, marketing, and image-building by developing countries, especially when they have access to free international mechanisms for promoting investments and engaging with high-level private sector representatives.

3. Comparative Analysis

Having reviewed the importance and purpose of FDI attraction and Investment Promotion Agencies, this section turns to a comparative study of unified TT legal frameworks in different countries. This comparative analysis may be a useful source for emerging and developing countries if they choose to amend its domestic legislation. For this part countries as Nigeria, Ivory Coast, Namibia, Costa Rica Colombia, and Egypt will be analysed.

3.1. Nigeria

Nigeria has a single regulatory system for TTs.[31] The principal characteristic of this system is the NOTAP with the task to facilitate the flow of foreign

31 See Nigeria. Revised guidelines for registration and monitoring of TT agreements. (Nigeria, NOTAP, 2020).

technology into Nigeria by registering all contracts for TTs and promote locally generated technologies.[32] NOTAP has the Mandate to:[33] promote and identify the selection of foreign technology to be transferred, assist Nigerians in contract negotiations with the objective to obtain the best TT contractual conditions, supporting adaptation of foreign technology to local environment, registration of all the TT agreements, monitoring the execution of TT agreements registered at NOTAP, enabling the commercialization of local technology developed under R&D connecting institutions and private sector, protecting Intellectual property rights and creating a network of researchers, technical experts and professionals to encourage development of human capital skills.[34] In general, the Nigerian legislation, as set above, aims at coordinating TT agreements between Nigerian enterprises and foreign investors with the promotion and creation of human capital, local environment, infrastructure, and scientific research. Nigeria connects internal TTs with external TTs: NOTAP, is a TTO who oversees that coordination.

According to Article 1.3 of the *Revised guidelines for registration and monitoring of technology transfer agreements in Nigeria*, the activities of NOTAP al extend to the facilitation of foreign technology to local enterprises. This an active policy enables connecting the Nigerian local market with the technology to be transferred. Moreover, the central Nigerian T.T office oversees the establishment of relations with research centers, organizations, agencies, or development institutions for the development of domestic special and prioritized technological necessities. This function is corelated with the task connect NGOs, financial sector, private sector, research institutions, industry and government for TT projects. In sum, NOTAP has functions of coordination and facilitation of internal and external TT adapting technologies to local necessities.

Besides, the actions of NOTAP also cover the collection of information regarding local Technological R&D emanating from public institutions and universities. This is improved with gathering of data regarding internal and external TT to promote decision making, advise and supervision to TT agreements with adaptation to local trends. Finally, NOTAP has the capacity to realize public and private partnerships in TT projects and the duty of promotion and advising joint ventures within the small and medium enterprises

32 According to Emanuel Osei. "Analysing the Legal and Regulatory Framework of Technology Transfer Regimes in Developing Countries: The case of Ghana" (University of Pretoria. 202pg. XIV) "Ghana can learn best practices from (…) Nigeria where there is a well-developed regulatory framework for technology transfers". Osei, E. (2021). analyzing the legal and regulatory framework of technology transfer regimes in developing countries: the case of Ghana. University of Pretoria 2021.

33 Revised guidelines for registration and monitoring of technology transfer agreements in Nigeria (2020), art 1.2, NOTAP.

34 Art 1.2 Mandate of NOTAP TT Guidelines (NOTAP, 2020).

sector. Then, NOTAP is the entity which organize: planification of structural projects for the transference of technology; consultancy services on investment and transfer of technology; evaluation of R&D results; and others[35].

In other words, Nigeria has adopted a TT unified legal framework addressing external (as foreign investment and private sector TT contracts) and internal TT (such as addressing local R&D results, connection between private sector, academy and TT offices, development of human capital, and commercialization of local technology available). This is relevant as NOTAP TT functions could be of value for other countries as comparison to expand TT functions in areas of academic TT connections with MSME[36] sector and development of local content capacities.

As explained above, Nigeria has a unique regime of TT aiming at connecting FDIs, domestic R&D results, public TT offices and academic institutions, and creating a network of researchers and technical experts adapting foreign technologies to local special conditions. Last but not least, NOTAP is a public TT office and not necessarily an Investment Agency.

Nevertheless, NOTAP constitutive act has the objective to promote supportive measures only for Nigerian enterprise. As a result, Nigeria could have established an unequal treatment between foreign and local enterprises according to the functions of the NOTAP.[37] The Nigerian legislation explicitly indicates that the TTO promotes TT in favour of Nigerian Enterprises to obtain better conditions in the agreements with foreign corporations (art. 1.2 a, b, c, d *Revised guidelines for registration and monitoring of technology transfer agreements in Nigeria*, 2020).

Hence, Nigeria has innovative approaches to T.T management but still being restrictive and not inclusive with foreign corporations.[38]

3.2. Costa Rica

Another potential source of study and innovation could be Costa Rica. Recently, Costa Rica was ranked in 68th place of the Competitiveness Report for 2022 (WIPO, 2022) and stands with a GPD of 64.28 billion dollars. Costa Rica is the country that attracted most FDIs in the world during the pandemic with respect to the size of its economy. According to the 2020 annual Greenfield Performance Index, Costa Rica scored 11.4, meaning the country attracted 11 times the amount of new FDI that was expected given

35 Art 1.3 Revised Guidelines for registration and monitoring of TT Nigeria. NOTAP (2020).

36 Micro, Small, Medium enterprises.

37 NOTAP. Revised Guidelines TT (2020) Nigeria. "Art.1.2. Development the negotiating skills of Nigerians with a view to ensuring the acquirement of the best contractual terms and conditions by Nigerian parties entering into any contract or agreement for the transfer of foreign technology".

38 See. OCDE. International Technology Transfer Policies (OECD, 2019).

the size of its economy (CINDE, 2021). For these reasons, the Costa Rican experience, and its approach to attracting FDIs could be an important point of reference.

In 2021, Costa Rica modified its TT Legislation[39]. Interestingly, **Costa Rica chose not to have a special legislation for FDIs (OEA, Foreign Trade Informatic System, 2022).** In fact, according to the WTO (2019)[40], Costa Rica is focused more on developing better conditions and financial mechanisms to Micro Small, Small and Medium Enterprises (MIPYMES) to attract FDIs.

Moreover, Costa Rica is a special case in the world as for many years Costa Rica´s IPA -CINDE- was a private non-profit organization in charge of attracting FDI and not a public entity. Only until 1996 PROCOMER, the public investment promotion agency for Costa Rica was created. The role of CINDE as a private actor attracting FDI continue to be a debate in the Country regarding public vs private efficiency.

Despite this public-private dichotomy, in 2022, Costa Rica was rated as the World's Top Investment Promotion Agency by ITC – United Nations. This could be of interest as CINDE, governed by the private Costa Rican sector, was recognized in the world as one of the Top IPA´s. CINDE beat many IPA´S of developed countries that usually have more resources and image marketing power than developing countries. Therefore, looking at the structure of CINDE until 2023, there is an open possibility of including the private sector in the attraction of FDI and TT negotiations[41].

The idea behind Costa Rica's approach is to promote a local attractive environment, local labour, and connection between FDIs and domestic enterprises. At this moment innovative MSMEs are the priority of the structural TTs and FDIs structural projects in Costa Rica. As a consequence, Costa Rica adopted a position of openness to the international market and reduced requirements for foreign enterprises to enter the market and residency establishment in the country (passive policy).[42] The main sectors of attraction of

39 Law N° 9971 11th May 2021 modified Law 7169 of 1990 for the promotion and technology development. Costa Rica. (Translation from the author from the spanish) (Costa Rica, 2021)

40 WTO. "Examen de políticas comerciales" (2019) WT/TPR/G/392.

41 See. CINDE (2022) "Costa Rica rated as the World's Top Investment Promotion Agency by ITC – United Nations". (CINDE, 2022)

42 See WTO. #Examen de políticas comerciales" (WTO. 2019) WT/TPR/G/392. It is important to Notice that Costa Rica had concreted recently numerous Free Trade Agreements. Now days Costa Rica has 14 FTAs. Also, the Costa Rican policy is focused on specific sectors of Development and FDIS" attraction". "La política de atracción de IED se ha enfocado proactivamente en cuatro áreas específicas: servicios, manufactura avanzada, ciencias de la vida y tecnologías limpias, áreas en las que Costa Rica ha destacado con alto potencial de crecimiento y niveles de sofisticación. Adicionalmente, se realizan esfuerzos importantes para fortalecer la atracción de inversión en infraestructura y turismo. Esta estrategia ha generado un crecimiento importante en las oportunidades de empleo y la transferencia tecnología y conocimiento, lo cual ha permitido incrementar la productividad de este sector. La estrategia del Gobierno para la diversificación

FDIs of Costa Rica are infrastructure, tourism, services, advanced manufactures, life science and green technologies.

Consequently, Costa Rica is one interesting example that demonstrates passive policies and real equal treatment between foreign and local investor could attract more TTs and FDIs. Costa Rica is indeed focusing on the creation of a unified internal and external TT system. This unified system contemplates a hierarchy, communication and interaction between minister offices, National foreign investment agencies, universities, and private and public enterprises - *Law N° 9971 11th May 2021*[43].

Moreover, the registration of TT agreements is not the responsibility of an investment agency. TT agreements are registered at the new National Science and Technology Information System (Sincyt), whose only purpose is to make available the information and contribute to the decision making by private and public entities that are part of the National Science, Technology, and Innovation System (art 25. Law 7169 of 1990). This is relevant as other developing countries choose sometimes to supervise T.T. through investment promotion agencies linked usually with the minister of commerce. On the opposite side, Costa Rica decided to put TT at the R&D, education, and innovation sectors. This shows at least that more organs of the state could be integrated for a successful TT policy. In Costa Rica the TT offices don´t respond to the minister of commerce but to the minister of science, technology, and innovation (Art. 15, Law 7169 of 1990).

Finally, the inscription of private enterprises to the National Science and Technology Information System (Sincyt) is only voluntary. The Government only offers incentives to register the corporation in the system. Only when an enterprise decides to register in the system there is mandatory information that must be send (Art. 25. Law 7169 of 1990)[44]. This is relevant as other developing countries, as Ghana for example, asks for a mandatory registration

de la IED ha contribuido a aumentar y diversificar las exportaciones, reformar la estructura productiva del país e incrementar su participación en las cadenas globales de valor, sobre todo en las áreas de electrónica, dispositivos médicos, automotriz, aeroespacial/aeronáutica y dispositivos de filmación".

43 Art 7. Law 7169 of 1990, Modified by Law 9971 11th May 2021, Costa Rica: (translation made by the author from Spanish): "The National Science, Technology and Innovation System is created, within the framework of the sectionalization of the State. The System is constituted by the set of agents, institutions, entities and organs of the public sector, the private sector and research and higher education institutions, which together and individually interact in the production, transfer and use of knowledge and technologies that influence the innovation process".

44 Art 9. Law 7169 of 1990, Modified by Law 9971 11th May 2021, Costa Rica: (Translation made by the author from spanish): "In accordance with Law 5525, National Planning Law, of May 2, 1974, the National Science, Technology and Innovation System shall have the general objective of coordinating and executing all those provisions established by the Ministry of Science, Innovation, Technology and Telecommunications (Micitt), as well as integrating the efforts of individuals for the coordination of scientific and technological development, as well as for the application of knowledge of science and technology, for the social and economic welfare of the country".

of the agreements to the Investment Promotion Agency whereas Costa Rica is more likely interested in the collection of investment and TT data and voluntary adds to the system.

In sum, Costa Rica chose to create a coordinated system for TT. This regime aims at establishing an effective coordination of different public and private institutions with the direction and planification of the Minister of Science and Technologies at the top of the system (Art. 11, Law 7169 of 1990).

3.3. Egypt

A similar example of the creation of a unified legal framework of TTs could be Egypt. TT provisions in Egypt can be found in the *Egyptian Commercial Code No. 17/1999 from Articles 72 to 87*[45]. Besides, under the Egyptian Law the Ministry of Higher and Scientific Research (MHESR) oversees TT transactions. Indeed, In Egypt, TT agreements are registered under the Scientific Development and Research sector. Moreover, Article 74 of Egyptian Commercial Code provides that TT contracts shall be concluded in written form, otherwise it shall be null and invalid. Nevertheless, there is not provision for invalidity, nullability or unenforceability of the contract if it is not registered at the Egyptian Ministry of Higher and Scientific Research (MHESR). This a relevant point to take into consideration as in other countries, as Ghana in the Act 865 of 2013 and TT regulation 1992 (LI 1547), set out for the invalidity and nullability of TT not registered. In contrast, Egypt only requires TTs to be presented in written form to generate legal effects.

In addition, according to the *Technology Transfer in Egypt 2019-2020* report published by the European Commission (2021), the government of Egypt has now days an innovation and TT strategic plan that would shape the future of the country:

*"The Sustainable Development Strategy Egypt Vision 2030"; "The National Strategy for Science Technology and Innovation 2030"; "The Developing Higher Education and Scientific Research Plan 2014-2030";" The National Strategic Plan for Pre-university and Education 2014- 2030", "**The Industrial Innovation Strategy of Egypt 2016**", and "**The Technology and Innovation Entrepreneurship Strategy**"* (European Comission, 2020).

In this case, Egypt has different short-, medium- and long-term policies aiming an internal and external TTs coordination. As described above, Egypt has two strategies regarding industrial innovation, technology, and entrepreneurship, which are related to external TTs.

On the one hand, the Ministry of Higher Education and Scientific Research (MHESR) is in charge of formulating innovation and technology

45 Osei (2021. p. 62) *Ibídem*.

strategies. However, other ministries participate in the coordination and formulation of TT policies, as the Ministry of Trade and Industry (MTI), the Ministry of Communications and Information Technology (MCIT), the Ministry of Investment and the Ministry of Education (E.C. 2021.pg 11). Furthermore, the entities in charge of executing TT policies are the STDF and ASRT. These execution entities oversee prioritizing funding and project TT development areas set by the Ministry of Education and Scientific Research. In other words, these agencies develop Egyptian research, negotiation, and innovation capabilities, to ensure the integration of Science, Technology, and Innovation (STI) in national strategies and to bridge the gap between industry, private sector, and academia (EC. 2021, p. 11).

On the other hand, the most recent legislation regarding TT in Egypt is the *Law 23/2018 on Incentives to Science, Technology, and Innovation*. This law enables academic institutions and research centres to create science parks and incubators, *regulates the creation of spin-offs permitting the participation and coordination of researchers, and establishes tax exemptions for corporations investing in research and development (R&D) (European Comission.pg12)*. Also, the Egyptian Decree 1186/2019 is another new legislation in the human capital sector for guaranteeing an effective TT.

Finally, Egypt has established different Technologic Transfer Offices promoted by the ASRT in the framework of the TICOs[8] Program with the help of the Ministry of Industry and Foreign Trade (E.C. 2021.pg17). This program and creation of TT Offices was *"Initially supported by the European programme TEMPUS and later by the Research Development and Innovation (RDI) programme, funded by EuropeAid, which established several TTOs at Universities and Research Centers in 2008" (pg17.)*. Nevertheless, even if the European Commission Report recognizes the efforts of Egypt creating a TT and Innovation system, many problems remain. For example, the lack of coordination of TT Offices and other key institutions.

In a detailed report assessing TT in Egypt, the European Commission[46] explains some of the main problems in the Egyptian TT legal framework. First, the Commission identifies the lack of coordination between the different institutions, the TICOs, and the research centers, is problematic in Egypt as it increases costs and could affect Technological transference in practice. Second, even if Egypt has a developed framework of protection of IP rights, there is a low patent activity. The limited amount of patent activity suggests that there is not a strong correlation in developing countries between major protection of IP Rights and TT. The OECD, however, has suggested that strong protection of IP rights should correlate with increases

46 European Commission. (2021). Technology Transfer in Egypt 2019-2020, pp. 22-24.

in TT.[47] Third, there is not a clear internal public policy in Egypt to promote creation of innovative cluster associations.

These limitations the Commission identified in Egypt may provide a helpful guidance one of the main difficulties in many developing countries consisting in offering mayor advantages to local MSMEs, as stated In the Africa Competitiveness Report 2017 and the global innovation index 2022[48]. Fourthly, even if there are many funding schemes for TT, there is an a*bsence or difficulty of information* for the private sector preventing access to incentives. This is relevant as other Countries as Costa Rica are trying to solve that problem creating an agency only focused on the gathering of TT information, incentives and making it available to the public, including foreign investors. Finally, *there is lack of strategies addressing the country's sectoral and technological priorities in Egypt.* This is important as the OCDE (2019) addressed repetitively the necessity to identify sectorial projects and areas for TT with competitive advantages for the country.

Hence, Egypt is a good example of enhancing internal and external TT. However, Egypt adopts a system of coordination between different public institutions and Ministries to achieve the common TT policy. This is a relevant point to take into consideration as there is not a unique institution supervising TT, as does NOTAP in Nigeria. Egypt is an interesting example with a different approach to TT. Nevertheless, as Nigeria the monitoring and supervision of TT agreements are allocated more in the Research and development sector.

3.4. Cote d'Ivoire

Another country whose TTR may be an interesting basis for consideration is the Ivory Coast. The Ivory Coast launched in August 2018 its new "*Code des Investissement*", which aims to attract FDIS and effective TT.

The TTR of the Cote d'Ivoire takes into consideration the recommendations made by the World Bank in February 2018. The World Bank stated that "*the focus of Côte d'Ivoire's National Development Plan (2016-2020) was to increase*

47 See. OCDE. International Technology Transfer Policies (2019). IP rights section. "Policies to acknowledge and protect IPRs play a central role in the ITT conditions prevailing in a country" pg.18. Even if there is a debate in the academy related with the real impact of IPR protection and FDI, the OCDE explicitly argue that: "IPR protection on FDI and technology transfer and shows extensive empirical evidence in favour of a positive net effect of strengthened IPR on technology transfer. This is particularly the case when composition of FDI matters, i.e., if the country aims to attract FDI in technology intensive sectors with high potential for technology transfer. However, for this positive effect to materialise, there is a need for sufficient technological endowment in the host country, which can be missing in developing economies which require assistance to build absorptive capacity" (p.19).

48 World Intellectual Property Organization (WIPO). Global Innovation Index (GII) 2022. World Bank. Africa Competitiveness Report. World Economic Forum. (2017). See Ghana relevant parts.

foreign direct investment (FDIs) and exports". Nevertheless, the International Organization described that *"the weight of FDIs and exports in GDP had not increased"* for 2018. As set by the World Bank, for 2018, *"only 3 percent of Ivoirian companies (in 2018) used imported technology licenses as against 15 percent in the rest of Africa. Moreover, Ivoirian companies spend less on research and innovation than their African counterparts"*.

In general, the World Bank recommended to the Ivory Coast to *"not only open up to the exterior but also enhance the skills of its labour force and the connectivity of its economy"* with internal TT mechanisms. Indeed, the World Bank proposed to the Ivory Coast to introduce a legal framework with 3 pillars:

- *"Pillar one: A policy of openness must be defined on the basis of Côte d'Ivoire's comparative advantages. An indicative list of potential products is proposed on the basis of the theories of revealed comparative advantages and product space. These industries can potentially attract foreign investors and turn toward exports in order to benefit from transfers of technologies and skills, which are still badly needed in Côte d'Ivoire"*.
- *"Pillar two: The capacity to assimilate, adapt and successfully implement a new technological tool will, to a great extent, depend on the skills available in the country. Unfortunately, Côte d'Ivoire's lag in terms of the development of its human capital is an obstacle. While the reform of the education system is essential, it must be accompanied by training partnerships with private companies, particularly foreign companies, and training of Ivoirians abroad. Here, the openness will help strengthen local competencies, which will in turn themselves reinforce the country's openness"*.
- *"Pillar three: good connectivity facilitates trade and increases the size of the market, generating economies of scale that are often essential to the establishment of foreign businesses and development of export activities. This requires lowering physical and virtual transportation costs and also reducing distances, for example through urbanization. The priorities are to improve the performance of the Ivoirian ports (and their related connections), to reduce the costs associated with the use of mobile telephone and Internet tools (1.5 to 3 times more expensive than in Ghana, for example) and to better manage the urbanization process by increasing the economic density of cities while controlling congestion costs"*.

The *Code des Investissement* of the Ivory Coast, Ordinance No 2018-646 1 August 2018, provides for prioritized investment. Sectors as health, agriculture and tourism have mayor benefits for investors (**see art 5**). This sectorial approach seeks to enhance the competitiveness of the country as recommended by the EU in the pillar 1 cited before. Furthermore, the Code provides for restrictions of investments in some areas by reasons of public interest (**see art 6**). It is a matter of fact that developing countries could have problems to open their domestic market to international trade as some areas of the economy are still fragile and major international trade could generate an internal crisis in the domestic sector.[49] It is to notice that after the pandemic, countries choose to adopt more restrictive admissions policies for foreign investment in industries considered of critical importance to host countries[50].

Moreover, the code makes no distinction between foreign and local investors according to the new legislation of the Ivory Coast. The aim is to increase the size of the market and flows of FDIS as set by the 3rd pillar cited above – namely, total equal treatment (**See for example Art 3, 21**). Additionally, provisions for the technical training for corporations but aiming more voluntary than mandatory local labour training with some exceptions (**See art 21 with a voluntary local labour and training policy for foreign large enterprises**) are granted. The objective is avoiding mandatory TT provisions preventing access to the Ivorian Market. Furthermore, the Ivory Coast has a common and a special investment regime – in case of an agreement between the government and the investor, it is not the code, but the contract between the parties that set the obligations and benefits for the investor (**See art. 19-20 structural projects).** This is important as agreements with the investor may accomplish objectives set by the recommendations made in pillars 2 and 3, cited above, of the EU. Besides, as other´s countries in the region, it is the investment promotion agency of the Ivory Coast the one in charge to receive all the documentation to monitoring, supervising, and supporting TT projects (**See art 47**). However, the Ivory Coast doesn´t specify that TT agreements must be registered. The only provision of registration of documents is art 37 of the Code but there is not mention of TT contracts. Finally, looking at the *Code des Investissement*, one complete section is addressed to MSMEs with mayor incentives. Financial assistance, facilitation and tax loans are proposed aiming to encourage local technological entrepreneurship.

In conclusion, the Ivory Coast's legislation carefully delineates the mandatory requirements for foreign enterprises. The Ivory Coast adopted special voluntary regimes for Foreign Investments with more incentives if the foreign corporation choose to contract local labour, qualified domestic labour or introduce local development strategies voluntarily. In other words, the Ivory Coast´s legislation offer is focused on voluntary TT. Moreover, the Ivory Coast is aware of the need of supporting MSME´s in a unified policy of TT. Hence, The Ivory Coast has an equal treatment approach and promote MSME´S. This can have the effect of attracting foreign investors interested in the region.

49 See for example provisions regarding differential and more favourable conditions of the WTO regarding developing countries 2023.

50 UNCTAD (2020). "Informe sobre las inversiones en el mundo 2020". *United Nations* (p. 11).

4. Namibia Investment Promotion Center

Namibia could serve as a practical example also of study. In 2022, the Global Innovation Index ranked Namibia as the 96th most competitive country in the world. However, Namibia outperformed in sectors such as investment institutions, market sophistication, and human capital. Specifically, Namibia ranked 49th in investment institutions, 82nd in market sophistication, and 72nd in human capital skills. Additionally, Namibia leads globally in expenditure on education, ranking first in this category. Therefore, developing countries could benefit from looking at the organization of the Namibian IPA (NIPDB) to learn about best practices in the region for TT and FDI promotion.

According to the United Nations and the World Economic Governance Index, the NIPDB was ranked the top IPA in the African Region and Namibia as the 2d best governed country in Africa (World Economics, 2024). Namibia's priority investment sectors include renewable energy, green hydrogen, metals mining and related industries, oil and gas, agriculture, tourism, transportation and logistics, chemicals and basic materials, and global business services[51]. This comparison could help other developing countries to identify priority investment sectors by considering peers in the region.

Furthermore, the NIPDB prioritizes its connection with the MSME sector and focuses on implementing Namibia's MSME policy of 2016. The aim, as stated by the Namibian IPA, is to provide coordinated and targeted support for the establishment and growth of MSMEs and start-ups. To achieve this, the NIPDB focuses on providing indirect and direct financial assistance, advice, and facilitating access to public information for the MSME sector. The goal is to enhance the capabilities of the local innovation sector.

Moreover, the Namibian IPA provides technical training to MSMEs and seeks to establish a business network connecting FDIs with local technical experts and MSMEs. Additionally, the NIPDB offers legal support, coordinates policy advocacy, and promotes start-up creation. This information is valuable as it helps identify the competencies and areas in which other IPAs in the region are working, which can be useful for implementing new policies.

For instance, the mission of the NIPDB includes improving market access for MSMEs through various mechanisms. Namibia is constructing a database that facilitates network connections among foreign investors, local enterprises, and stakeholders (indirect beneficiaries of investment) registered in the system, known as the MSME database & BSO database. The objective is to align investments with local capabilities and the local ecosystem to

51 NIPDB (2023). "Key sectors. Investment opportunities in Namibia including the current priority sectors".

encourage TT and FDI. This is significant because other developing countries, like Costa Rica, are also working on constructing databases to connect different business actors and monitor FDI, such as the National Science and Technology Information System (Sincyt) in Costa Rica. Therefore, Namibia is adopting a strategy similar to other developing countries that reflect best practices in TT.

Additionally, integrating MSMEs into large-scale investment projects is a priority for Namibia's IPA. That is why NIPDB also focuses on aiding for indirect and direct financing of the MSME sector. Finally, NIPDB is above all interested in attracting large scale international start-up funding for Namibia and improve Namibia's start-up ecosystem ranking to the top third quartile of a reputable global ranking index.

MSME Mapping strategy:

As a practical example, Namibia has created an MSME database with 800 currently registered entities. In 2022, the NIPDB launched the in4msme app, allowing MSMEs to register on the database by creating a profile and a business listing. The general public can download the app to search for MSMEs by sector and location. The objective of this MSME Mapping strategy is to identify the quantity of MSMEs by sector, geographical localization, and demographic profiles to be offered to foreign investors in the future. In other words, the goal is to obtain contact information and maintain the database.

MSME Financing Indaba and Chalet Case strategy:

In fact, in 2023, the NIPDB launched a pilot program called "chalet cage" aimed at exposing MSMEs to feedback from investors and financial experts. The target groups are again businesses with an annual turnover of less than N$10 million and start-ups with valuable business ideas seeking financial assistance. The main challenge is to connect these target groups with banks, insurers, NGOs, development agencies, commercial officers at foreign missions, and media partners. The idea is to facilitate access to financial mechanisms to improve local capabilities and technology transfer (T.T) with foreign investors.

K2G strategy:

Finally, another practical strategy of Namibia's IPA is the Know2Grow project, which aims to accelerate MSMEs. This project provides technical support and training in negotiations, marketing, and other skills to increase MSMEs' market access. The program was inaugurated in November 2022.

The strategy involves an annual exhibition that connects different targeted sectors. In 2022, 120 MSMEs were exhibited, with 60 participating in person and 60 virtually. As a result, three MSMEs received financial and mentorship awards, three MSMEs obtained retail space, and five MSMEs were included in the product certification pilot. Trade readiness assessments were conducted on exhibitors, and a headline sponsor was secured. In other words, the objective is to bridge the gap between institutional bureaucracy, government support, and the MSME sector to enhance better market access for local enterprises.

In summary, taking into consideration a comparative analysis with IPA´s institutions in the world, countries could benefit on implementing programmes seeking the promotion of MSME´s enterprises, reaching the best practices on TT.

5. Colombia

In Colombia, the Ministry of Science, Technology, and Innovation published guidelines for technology transfer (TT) in 2022 (Ministerio de Ciencia, Tecnología e Innovación, 2022). However, Colombia does not have a unified law regulating technology transfer. Regarding domestic TT, Laws 2069 of 2020, 1838 of 2017, and Decree 1556 of 2022, among others, regulate specific situations related to technology transfer.

Nevertheless, as previously mentioned, Colombia has chosen not to establish specific regulations, or unified system for internal and external technology transfer. In 2011, the mandatory registration of technology transfer agreements was theoretically eliminated, as the Decision 291 of the Commission of the Cartagena Agreement (Comunidad Andina, 1991) stablished in art 12 an obligation for member states to designate an entity for TT contracts registration. However, the DIAN (Colombian customs authority) remains responsible for registering technology transfer agreements from a tax control perspective, in accordance with Resolution 000062 of 2014. Consequently, Resolution 8742 of 2023 outlines the procedure for registering agreements before the DIAN, considering the previous regulations of Colombia's older technology transfer policies set by Decision 291 of the Commission of the Cartagena Agreement (Comunidad Andina, 1991), Decree 259 of 1992, and others.

Colombia is a unique case, as it differs from other countries in choosing not to adopt unified legislation regarding technology transfer, instead assigning the DIAN to handle the registration of technology transfer agreements. Although there is no mandatory registration requirement, the importation of technology must still be registered with DIAN for those seeking tax deductions. This is a voluntary approach to technology transfer; however, DIAN is not an entity specialized in technology transfer and may not provide an adequate assessment of the effectiveness of technology transfer. Colombia could benefit from adopting best practices from other countries and streamlining its procedures. It is important to notice that even though Colombia is a developing country with high acquisitive power and income, was ranked as one of the worst governed countries in the region by the World Governance Index 2024 (World Economics, 2024).

CONCLUSION

In conclusion, countries could benefit from comparative approaches to technology transfer (TT). Developing countries are more vulnerable to economic challenges in a post-pandemic scenario, facing supply chain disruptions, high inflation rates, and social instabilities due to the lingering effects of the pandemic and the global economic uncertainty brought on by the Russian invasion of Ukraine. These countries need to be resilient and adopt TT policies to transform their commodities export models and industrialize their economies. A crisis can also present opportunities for growth, and in the 21st century, the impact of advanced technologies and the green transition will reshape the global economic landscape.

Developing countries around the world are in a race to capitalize on the opportunities provided by this complex scenario. However, only with appropriate TT policies and best practices, prioritizing investments and focusing on sustainable growth, can they achieve meaningful economic and social transformation. Defining TT best practices are crucial for the growth of these countries.

This article did not aim to present more profitable models of technology transfer, but rather sought to identify how investment promotion agencies, developing countries, and other institutions are aligning their policies with TT strategies. This analysis could help former colonies recognize that the United States and the European Union are not the only models to look at. Many developing countries share similar challenges and are adopting different approaches that could lead to more effective policies, considering the specific needs and conditions of each country and region. For example, even if Namibia is a less developed country compared to Colombia, was ranked as one of the best governed countries in the world. Maybe Colombia could learn of Namibia´s experience about best practices regarding rule of law, corruption prevention or TT policies.

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