



## POLICY BRIEF

### STRATEGIES FOR HUMAN RESOURCE DEVELOPMENT FOR THE PHARMACEUTICAL SECTOR



## Strategies for Human Resource Development for the Sector

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### 1.0. EXECUTIVE SUMMARY

This policy brief arises from a study commissioned by the Scinnovent Centre and undertaken by ACTS under the auspices of the Science Granting Councils Initiative (SGCI). The study focused on building competitive and socially inclusive local pharmaceutical industries in West Africa and addressed five issues: affordability, human resources, research and development, intellectual property and technology transfer. This policy brief presents findings on the human resource situation for the pharmaceutical sector in West Africa. The policy brief explains the current situation and what can be in terms of training, linking with diaspora, collaboration and partnership with Asian countries and building synergy within ECOWAS to address the human resource requirements for the sector in West Africa.

### 2.0. INTRODUCTION

Many African countries, through their development plans, have prioritized access to affordable healthcare services. However, the realization of these aspirations has been constrained due to the high costs of imported medicines, which not only increase the health burden but also have negative implications on access and affordability of medicines. Affordability is important since up to 90 % of the populations buy medicines through out-of-pocket payments. As a result, many African countries have started initiatives to promote local pharmaceutical manufacturing, to address the issue of high costs of imported medicines and to tap on additional benefits that local pharmaceutical industries can bring, such as creation of employment opportunities, technology and skills transfer and enhancing intra-Africa trade. This has led to the establishment of about 172 local pharmaceutical firms in the ECOWAS region. Nigeria is leading with 120 firms,

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followed by Ghana with 37 firms, while Senegal and Cote d'Ivoire have five firms each. Benin, Burkina Faso, Cape Verde and Guinea Conakry have one firm each.

However, there are several bottlenecks experienced by the sector, along its value chain (access to inputs, manufacturing, and marketing). These include (a) **access to raw material** - over 90 % of the inputs for local pharmaceutical manufacturing is imported i.e. Active Pharmaceutical Ingredients (APIs); packaging materials, as well as other inputs that are not manufactured in the region; (b) **shortage of skilled labour** - the human resource challenge is not only on the number of pharmacists and other professionals but also on their limited or lack of industrial pharmaceutical knowledge and skills; (c) **expensive pharmaceutical manufacturing equipment and technologies** - the bulk of the pharmaceutical manufacturing equipment are imported, and therefore expensive, (d) **low investment in pharmaceutical R&D** in the region (e) limited utilization of **TRIPS Flexibilities**; (f) **medicines regulations** in the ECOWAS region, member states have in place basic legal framework for the regulation and control of the manufacture, distribution and utilization of medicines for human use. A review of the systems (Anglophone and Francophone) showed that medicine regulation is still problematic, due to weak infrastructure, weak enforcement power, and inadequate human resource capacity, amongst others. The medicines regulatory sector is also faced with the problems of poor motivation and low retention of staff; high levels of counterfeit and illicit medicines and lack of harmonization of medicines regulation. There are also differences in the requirements for medicines registration in member countries; (g) **accessing market** - the local manufacturers have problems with procurement of pharmaceutical products by public agencies which is usually based on the quoted price, with a tendency to select the lowest bidder. This normally favours international pharmaceutical agencies over local industries due to the low production costs of the former. Furthermore, all donor and development partners funded procurement of essential medicines requires that supplier should have WHO's product prequalification.

This policy brief focuses on unpacking the issue of inadequate human resources that can support the growth of local pharmaceutical firms in West Africa. It documents the following:

- a. The current human resource situation in the pharmaceutical firms in each of the nine countries of West Africa and the coping strategies the firms have adopted.
- b. The role played by the national universities and other training institutions in each of the countries to address the human resource challenge
- c. The role the West Africans in the diaspora can play to provide the required human resource expertise in the pharmaceutical firms
- d. The extent of collaboration with countries from Asian countries that can help to support the sector, by documenting success stories and lessons learned from other countries
- e. The extent countries in the region with more developed pharmaceutical sector, such as, Nigeria and Ghana can help other West African countries to develop their local pharmaceutical industries.
- f.

### 3.0. APPROACH AND RESULTS

The required information was obtained through desk study, interviews, and stakeholder's consultations, in five ECOWAS countries (Nigeria, Ghana, Cote d'Ivoire, Senegal, and Togo) undertaken by five national consultants, who were contracted in each of these countries. In addition, a scoping desk study was undertaken on Mali, Guinea Conakry, Cape Verde and Benin. In addition to national/in-country studies, comparative country studies were also used to document the differences and similarities in approaches between Anglophone and Francophone countries on some of the issues. Benchmarking studies were also undertaken targeting India, China, Brazil, Morocco and Ethiopia, to identify some best practices. The national consultants prepared national reports, which we moderated during a three-day experience sharing amongst the five consultants which took place in Abidjan. The main findings of this study are outline below:

#### **The current status of human resource situation in the pharmaceutical industries in the nine countries is inadequate**

The current HR situation of the LPPs<sup>8</sup> in West Africa is very precarious. There is a mixture of small proportion of local and plenty of Indian technologists manning the sector in the region. The industrial pharmacists in the pharmaceutical manufacturing sector are mostly sourced from India under individual efforts by the companies and their Indian partners. In Ghana for example, there are about fifty (50)<sup>9</sup> local pharmacists in the industries which accounts for only 1.9% of total pharmacists registered with the PSGH<sup>10</sup> of about two thousand six hundred and eighty-two (2682)<sup>11</sup>. Similarly, in Togo, almost all the technical positions in the four LPPs in the country are held by Indians or Chinese while Togolese hold the position of superintendent (Table 1 below). The same picture is found in Senegal, where local pharmacists do not have a strong representation in the five pharmaceutical industries in the country; accounting for only 22% of the total number of senior staff.

**Table 1: Holders of management position in LPM in Togo**

<b>Manufacturer</b>	<b>Shareholder</b>	<b>Technical manager</b>	<b>Type of factory</b>
GGIA	Togolese	Togolese	Local production
DO PHARMA	Togolese	Indians	Local production
SPRUKFIELD	Indians	Indians	Local production
TONGMEI	Chinese	Chinese	Reconditioning

In Nigeria, there are locally trained pharmacists that are filling positions at the secondary and tertiary levels of pharmaceutical manufacturing. However, there is still shortage of human resources for the primary manufacture of active pharmaceutical ingredients.

<sup>8</sup> Local Pharmaceutical Industries (LPPs)

<sup>9</sup> Dr Sam Gaizer, Chairman IPA

<sup>10</sup> Pharmaceutical Society of Ghana

<sup>11</sup> PSGH 2019 AGM Magazine

This situation is attributed to three factors: in-adequate training by local universities; brain-drain; and terms and conditions in LPPs. First is that the pharmaceutical sector requires specialized skills in pharmaceutical production identification, formulation, production and trials, which in most cases can only be provided at post graduate level<sup>12</sup>. Secondly, brain drain is another great challenge facing the availability of skilled personnel in the pharmaceutical industry. A recent survey on the financial cost of medical personnel, pharmacists inclusive, emigrating from sub-Saharan Africa revealed that many medical personnel in sub-Saharan countries were, in fact, working in the United Kingdom, Australia, Canada and the United States. The actual numbers are estimated by various parties to be in the thousands and account for an estimated loss of return on investment for these West African countries of almost US\$2.17bn while the net gain for the developed countries to which they emigrated was estimated at US\$4.55bn (Mills *et al.*, 2011). Finally; many young pharmacists who enter the sector do not stay long enough because they do not find it attractive enough.

### **The role played by universities and training institutions to address the HR challenge for the sector**

Local universities and training institutions are involved in the training of pharmacists, scientists and technologies for the pharmaceutical sector, but the level of preparedness of the graduates from the local institutions to support the unique and specialized skills requirements for the sector is inadequate as briefly described here below:

- a. **Ghana:** Universities such as KNUST<sup>13</sup>, UG<sup>14</sup>, and UDS<sup>15</sup> are involved with the training of pharmacists, engineers and other scientists for the sector. There are also some other training institutions which train technicians for the sector as well, including some of the polytechnics which are now universities. It is only KNUST that train students at both undergraduate and postgraduate levels in Pharmaceutical Technology. KNUST offers an MSc (Pharm Tech) program, which is designed with industry in mind. It is expected that the industry will sponsor their employees for this program. In 2019, the content of the Pharmaceutical Technology Program<sup>16</sup> was reviewed and submitted to the NAB for accreditation.
- b. **Nigeria:** Nigeria has 21 universities that offer training in pharmacy at undergraduate and some at both undergraduate and postgraduate levels. These include University of Benin, University of Ibadan, Obafemi Awolowo University, Ahmad Bello University, University of Lagos, University of Port-Harcourt and University of Nigeria. The nation has capacity to produce more than 1500 pharmacists per annum. In 1989, the National University Commission (NUC) in Nigeria approved minimum academic standards of five-year training curriculum for Pharmacy. However, the six to seven years Pharm Doctor Program remains the current global best standard for sustainable training of people who

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<sup>12</sup> This is discussed in details in the next section

<sup>13</sup> Kwame Nkrumah University of Science and Technology

<sup>14</sup> University of Ghana

<sup>15</sup> University of Development Studies

<sup>16</sup> Prof. Marcel Bayor, Head, Pharmaceutics, KNUST(personal communication)

will handle a critical aspect of a nation's health care delivery system. The pharmacy curriculum has been expanded to meet up with the challenges from the clinical and industrial angles. One of such moves is approval given by the NUC for the commencement of PharmD programme in Nigerian universities. Some universities including the University of Benin, Benin City, Nigeria have started.

Most of the universities with postgraduate programmes in pharmaceuticals also have specializations in aspects of pharmaceutical technology which is very relevant to the pharmaceutical industry. What is lacking or in short supply is the absence of training facilities, For instance, at the Obafemi Awolowo University there is a Drug Research and Production Unit with facilities for pilot production of medicines but the equipment are obsolete compared to what obtains in the pharmaceutical industry.

- c. **Côte d'Ivoire:** Similarly in Cote d'Ivoire, there are several universities that offer training in medicine. These include Felix Houphouet Boigny univesrity; Unversite d'Ábobo-Adjame and Ecole de medicine. However, only Felix Houphouey Boigny university offers training in pharmacy. Since its creation in 1977, the Pharmaceutical and Biological Sciences Faculty has trained more than 1500 pharmacists. The Biological and Pharmaceutical Sciences Faculty of Côte d'Ivoire is the only school officially dedicated to the training of pharmacists. It does not have a highly specialized training program for the pharmaceutical industry. Pharmacists trained in are not specialized in the Pharmaceutical Industry and therefore the sector is full of pharmacists with some understanding in pharmaceutical manufacturing acquired during their university training but are not specialized to lead and operate a pharmaceutical industry.
- d. **Senegal:** In Senegal Dakar University Cheikh Anta Diop (UCAD) is currently the only university with a faculty of pharmacy. A second faculty is being built at Thies in western Senegal. UCAD has 4 training and specializations and among them Master's Degree programmes in industrial drug development; herbal medicine and cosmetology; pharmaceutical sciences.

Common challenges to pharmacy training from all these countries are:

- a. Limited postgraduate programmes focusing on pharmaceutical industries
- b. Limited hands-one training opportunities at the universities
- c. Limited practical exposures to the industry during training
- d. Lack of pilot industries that universities can use for practical training

### **The role of West African in the diaspora to support HR for the sector**

Currently there is little contribution of the West African citizens in the diaspora in providing technical support to the local pharmaceutical industries. This is mainly due to lack of a policy framework to engage them for the sector. For example, in Ghana, there is no formal engagement with the Ghanaians in the diaspora to date except through the Private Health Sector Policy of 2013. This policy shows how the private sector, in general, can be engaged with the Ghana health system through investments. However, Ghana is in the process of drafting a Diasporian Policy, an abridged form was introduced during the Ghana Diaspora Celebration and Homecoming Summit 2019, 3-5 July in Accra. Such a policy which also exists

in Zambia<sup>17</sup>, Kenya<sup>18</sup>, and Ireland<sup>19</sup> will harness broadly all the potentials of the Ghanaian diaspora in a systematic framework for national development including LPP. Similarly, the Ivorian diaspora represents an important and useful financial power for local populations living in Côte d'Ivoire. In addition to its financial contribution, the diaspora also represents a pool of human resources, skills and know-how that can contribute to economic development, including through job creation. However, lack of policy has limited their contributions to the other sectors. In Nigeria, the diaspora has played a very significant role in the implementation of the PharmD programme. The Nigerian Pharmacists and Pharmaceutical Scientists in the Americas Inc. collaborated with the Pharmacists Council of Nigeria to run a special PharmD for academic pharmacists to enable them serve as credible resource persons for the nationwide implementation of the programme.

Secondly, apart from Nigeria and Ghana, the remaining West African countries have few local industries and therefore job opportunities that can attract people in the diaspora. Senegal and Cote d'Ivoire have five industries each; Togo has four industries while Mali, Cape Verde, Burkina Faso and Benin have only one each.

The pharmaceutical industries in Senegal are not numerous and consequently the offer is much lower than the demand. Also the industries are not attractive in terms of innovative products, infrastructures so that the Senegalese of the diaspora are not willing to return to Senegal. However, like Rwanda in 2009, a Senegalese Diaspora policy should be established. The policy could be the guiding framework which sets out how authorities wishing to see the Senegalese diaspora contributing and being integrated into the national development of the pharmaceutical sector. Knowledge and skills can be transferred through capacity building programs, mobility based approach to help mobilize competencies acquired by the diaspora for the benefit of regional development. Also to be explored is short term volunteering program to reverse brain drain by encouraging nationals to provide their expertise on consultancy services<sup>20</sup>.

### **Role of Asian Countries, Successes and Lessons Learnt**

The Asian countries are key players in the pharmaceutical industries in West Africa and through strategy collaboration at regional level they can support the promotion of local industries through capacity building and technology transfer. India, China and Bangladesh are the main sources of large imports of medicines in West Africa. They are also the main sources of pharmaceutical packaging materials and excipients. There are already some activities taking place in terms of collaboration which are positive, as illustrated here below:

- a. In **Mali**, a company called **Human well Healthcare**, a **Chinese pharmaceutical group** opened its first plant on the continent, in Mali, in early 2015. Covering an area of 69,000 m<sup>2</sup>, the plant employs more than 200 Malians. This was as a

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<sup>17</sup> [http://www.mofa.gov.zm/?wpfb\\_dl=48](http://www.mofa.gov.zm/?wpfb_dl=48)

<sup>18</sup> <http://www.mfa.go.ke/wp-content/uploads/2016/09/Kenya-Diaspora-Policy.pdf>

<sup>19</sup> <https://www.dfa.ie/media/globalirish/global-irish-irelands-diaspora-policy.pdf>

<sup>20</sup> [https://www.iom.int/sites/default/files/country/EEA/info\\_sheet\\_diaspora.pdf](https://www.iom.int/sites/default/files/country/EEA/info_sheet_diaspora.pdf)

result of the Chinese government pledge to invest \$60 billion to support the continent's development at the Forum on China-Africa Cooperation in Johannesburg in December 2015. Cooperation on health was one of the priorities of the meeting, and China encouraged its companies to support African pharmaceutical production to facilitate access to medicines exclusively to investment projects in Africa. All have received training in modern pharmaceutical production techniques.

- b. In **Senegal**, the presence of Indian and Chinese pharmaceutical industries favours the transfer of technology, generates jobs, limits import and therefore facilitates access to medicines. What is important is to have a win-win partnership. Another opportunity for collaboration is where local industries currently in Senegal could purchase bulk generic products from these countries in order to make the secondary packaging.
- c. In **Togo**, Asian technicians are already working with manufacturers in Togo, as said in the lines above. What needs to be done is to carry that cooperation to institutional level. That will enable the training of many national technicians and make the cooperation more fruitful.

### **The role of Nigeria and Ghana to help other West African countries to develop their local pharmaceutical industries**

Nigeria and Ghana, which account for over 85 % of the local pharmaceutical industries in ECOWAS, has the potential to support the other countries in terms of capacity building and experience sharing. Both Nigeria and Ghana have had a considerable length of time with pharmaceutical manufacturing experience and that could be documented to act as a learning curve for some countries who want to venture into that industry.

For example, the Ghana College of Pharmacists (GCPharm)<sup>21</sup> could be a convenient place to offer these services. The College can be asked to document the phases of Ghana's pharmaceutical manufacturing for print and audio-visuals for training purposes. Indeed, due to the relatively advanced nature of regulation by GFDA<sup>22</sup>, Ghana can offer services in regulatory science to help train other regulators in the region by co-opting regulators from other countries for joint factory inspections, etc. to develop their capacity. USP Ghana has been offering training for regulators and PM from all over Africa in Accra which could complement what GFDA could do. Further, USP Ghana<sup>23</sup> has offered its facilities to University of Ghana complement the training of pharmacists and postgraduates.

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<sup>21</sup> <http://gcpharm.edu.gh/contact/>

<sup>22</sup> Ghana Food and Drug Authority

<sup>23</sup> Kwasi Boateng, USP Ghana



The West African Postgraduate College of Pharmacists (WAPCP) with its secretariat in Lagos, Nigeria can play a very major role in developing the local pharmaceutical industry in West Africa.

The College is a specialized agency and component part of the West African Health Organization (WAHO). It has produced over 2000 Fellows specializing in different fields since its inception. It has a Faculty of Drug Production and Quality Assurance that is specifically focused on human resource development in the pharmaceutical industry. The Francophone countries opted out of the WAPCP when it was formed out of West African Pharmaceutical Federation.

#### **4.0. CONCLUSIONS AND RECOMMENDATIONS**

Based on the findings presented above, the following conclusions and recommendations are provided for consideration by policy makers.

1. **The current status of human resource** in the pharmaceutical industries in the nine countries is inadequate. This affects not only the growth of local pharmaceutical industries but also contribute to the challenges faced by the products from these industries to get WHO certifications. Investing in developing the human resource required for the sector should be given priority, if ECOWAS has to realize its mission of enhancing the contribution of the local pharmaceutical industries to access and affordability of medicines.
2. **Training of pharmacists** is currently taking place in the universities and other trainings institutions in all the nine countries. However, the graduates from these universities do not have the required skills and expertise to properly fit in the local pharmaceutical industries, due to inadequate exposure on hands-on training. The following recommendations are therefore suggested:
  - a. In collaboration with local pharmaceutical industries, the ECOWAS government should develop an incentive structure that can enable existing local pharmaceutical industries to offer hands-on training to postgraduate students.
  - b. The governments should support the numerous pharmacy training schools to have their in-house mini manufacturing units for hands-on training
  - c. WAPCP should be strengthened to play a key role in training pharmacists and pharmacy researchers who can possess the required expertise and meet the demand of the pharmaceutical market in both Francophone and Anglophone countries in the ECOWAS region.
  - d. To improve on quality of graduate that is fit for the pharmaceutical industries, universities should periodically review their curricula to align them with modern trends in the evolution of the pharmaceutical industry. Areas such as regulation, pharmaceutical technology, drug formulation and development, and clinical trial studies need to be strengthened. Secondly the regional harmonization of the curricula of training for first, second and third cycles of pharmacy studies would

lead to the production of a qualified workforce and the improvement of the practice of pharmacy.

- e. Other recommendations include: creation of Centres of Excellences for training pharmaceutical manufacturers for the region; establishing regional facilities for drug analysis and laboratory services since these services are very expensive but becomes manageable through economies of scales; and creation of a specific pharmaceutical programme of long-term courses for regulators and industries in the region.
3. **The contribution of diaspora** to support the local pharmaceutical industries can be enhanced through the following:
- a. Development of a diaspora policy to provide a framework for engagement with the sector in terms of investment, technology and skills transfer. The policy would also articulate how the ECOWAS diaspora can be integrated in the national development of the pharmaceutical sector
  - b. Short term volunteering programme to reverse the brain-drain by encouraging nationals to provide their expertise, transfer of know-how and skills
  - c. Short term consultancy services by diaspora or partnership between local and diaspora
  - d. Provide internship opportunities provided by diaspora abroad for young graduates from the region to be exposed in modern pharmaceutical production processes
4. **Collaboration and partnerships with Asian countries:** Indian, China and Indonesia are key players in the pharmaceutical industries. They are the main exporters of medicines to ECOWAS countries and pharmaceutical inputs to ECOWAS local pharmaceutical industries. Exploring partnerships and collaboration on capacity building and technology transfer that result into win-win situation is recommended.
5. **Collaboration within ECOWAS:** The study has shown that each of the nine countries has unique experience which they can offer to each other to support the development of the local pharmaceutical industries in the region. Through ECOWAS and WAHO, efforts should be given to developing a framework that can facilitate this.