

CIDRN Research Report

China's Health Engagement in Africa:

Soft power, public goods or investment opportunities?

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Outline:

1. Introduction
2. Review of China's health aid to Africa
3. New trends of China's health engagement in Africa
4. China's medical investment in Africa
5. Problems and challenges
6. Policy recommendations
7. Project report

Introduction

China's aid to Africa has witnessed a steady and dramatic increase in the last decade, but there has been very limited scholarly attention on the recently diversified forms and new trends of China's health related engagement with Africa and the underlying changing logics of China's health aid. The proposed study therefore aims to bridge this gap of understanding.

In the past decade, China's health assistance to African has taken new forms based on the traditional medical aid teams. First, China helps Africa build hospitals under the framework of "resource for health infrastructure". Chinese companies bring not only large flow of finance, but also high speed of construction. By assisting in quick development of African health infrastructure, China also deepens its cooperation with Africa and established an image of providing public goods. Second, Chinese companies have begun to assist the government's medical aid to Africa. A public-private partnership in China's health assistance is taking the initial steps. Third, China was exploring the way to turn health challenges of Africa into investment opportunities. How to make Chinese hospitals, health institutions and products "go out" becomes a key question. The malaria centers, a relatively new form of China's health assistance to Africa which was pledged at the 2006 FOCAC, have been taken as a business-oriented response to reforms of medical aid.

Main objectives of the study are researching the traditional and new form of China's health engagement in Africa, its challenges and opportunities as well as impacts on building African health systems. 1) To build up a systematic evaluation on achievements and challenges of China's health engagements in Africa; 2) To understand the impact of Chinese health assistance on African health systems; 3) To explore the challenges facing traditional Chinese medical aid form

The central question is whether Chinese health engagement in Africa is effective and

sustainable. This leads to the following questions: 1) what kind of impact does Chinese health engagement have on the health systems of recipient African countries? 2) What kind of barriers and challenges are facing traditional Chinese health assistance? 3) How has China diversified forms of health engagement in Africa on the basis of dispatching medical teams? 4) How does Chinese health assistance manage the (potential) conflicts induced by different objectives (soft power, diplomacy and business)?

The research methodology includes desk research, country-specific case studies and semi-structured interviews. The research will explore and develop the argument that, although traditional medical teams will be continued as a part of China's soft power strategy, China has to actively explore how it can be fitted into new cooperation models for mutual benefit. A public-private partnership is vital for China's sustainable contribution to provide health-related public goods to Africa. There are both opportunities and challenges for Chinese enterprises to enter the African recipient countries' markets.

Review of Chinese healthcare assistance to Africa

Generally, there are three types of financial resources provided by China for foreign aid: grants, interest-free loans and concessional loans. By 2012, China's aid to foreign countries is on average 40 billion RMB per year, among which aid towards African countries accounts for almost 50 percent.

Historically, China's health assistance to Africa began with the first medical aid team arriving in Algeria in 1962.

China's foreign aid is conducted in the following eight forms: complete projects, goods and materials, technical cooperation, human resources development cooperation, Chinese medical teams working abroad, emergency humanitarian aid, overseas volunteer programs and debt relief.

China's health assistance contributed to Africa by following means and methods: building hospitals, establishing malaria centers and other health facilities, donating medicine and health products, dispatching Chinese Medical Teams (including short-term projects and long term exchange programs), carrying out health human resources development cooperation (short- and long-term training and technical programs), providing humanitarian aid (sending medical teams, donating goods and equipment) and etc.

Facts and figures about China Medical Team (CMT)¹

·By 2015, China has sent more than 24,300 medical workers to most countries in Africa, treating nearly 270 million people on the continent. 51 Chinese medical workers left their lives on Africa.

¹ Data cited from "Review and Assessment Report on China's health development assistance", Department of global health research, China National Health Development Research, October 2016.

·By 2014, China had built more than 30 hospitals and 30 anti-malaria centers in Africa, provided 800 million RMB of medical machines and products to Africa. China has also trained 3,000 medical staff for African countries.

·Since 2013, China started the innovation of content and forms of health assistance to Africa. New forms include caring out Brightness Trip projects in 6 African countries, providing surgeries for over 2,000 cataract patients; establishing ophthalmology cooperation center with four countries, establishing counterpart hospital cooperation with six countries, and establishing the standardization of TCM clinic in 10 countries' medical team.

·When Ebola outbreak in West Africa in 2014, China totally provided a fourth round of aid worth more than \$120 million, sent more than 1,200 medical workers; In the meantime, China helped African countries to strengthen the construction of the public health system and assistance to Sierra Leone to build biological safety laboratory; more than 30 group of public health, clinical medical and laboratory testing expert group have been sent to 11 countries include Guinea, Sierra Leona, Liberia; 12,000 people of medical and public health staff in rural areas received training from China.

Hospitals

General situation of China's assistance for health facilities construction in Africa

·Since 1950s, China has built more than 120 health facilities in developing countries, and mostly are general hospitals and healthcare centers, malaria prevention and treatment centers; more than 80% is in Africa.

·Since 2013, China has built 38 health facilities in Africa, and provided 50 batches of medical devices and drugs.

·More than 50% of the health facilities built by Chinese government contains China Medical Team.

·The Chinese enterprises and civil organizations made efforts to improve the health accessibility of African local population through building and operating hospitals and clinics, investment in pharmaceutical industry for localized production.

Capacity building for health in Africa

In 2015, China has provided about 80 health related training courses, and trained more than 1,800 health policy makers, health managers, medical staffs and public health professionals.

Through the degrees education, short-term training in China and technical cooperation, health technology transfer has been strengthened, and the self-development capacity of health systems in African countries has been improved.

Three major health professionals are needed in developing countries:

- Health professionals who master the new and advanced medical technology, and could treat complicated cases and provide emergency medical rescue.
- Health workforce who are capable to conduct infectious disease prevention, maternal and child health care, common disease diagnosis, treatment and referral, chronic disease management and rehabilitation care at the primary health care

facilities.

- Health managers and researchers who are capable of hospital management and health policy research.

·Management of China's Health aid

China's Ministry of Commerce (MoFCOM) is the administrative department authorized by the State Council to oversee foreign aid. MoFCOM is responsible for the formulation of foreign aid policies, regulations, overall and annual plans, examination and approval of foreign aid projects as well as management of the project implementation. NHFPC (国家卫生计生委) is in close collaboration with MoFCOM when providing health aid to Africa.

The Ministry of Commerce as leading policy maker of development policies easily cause misunderstanding of the outside world that the main goal of Chinese development aid is commercial interests. It is harmful to China's image as a responsible player for global governance. The reform of management system of China's aid, though being discussed for long time, has not yet been on the political agenda of Chinese government.

Features of China's health aid to Africa:

First, the main form of China's health assistance to Africa is building hard healthcare infrastructures, which have the advantage of short program period and low cost.

Second, China's health aid to Africa is mainly short-term medical treatment programs. Third, China's health aid to Africa is based on the mobilization of nation-wide healthcare resources. The reason lies in the fact that China has framed health aid to Africa not only as a development issue, but also a diplomacy and governance issue.

Fourth, within the management of China's aid system, China's health aid to Africa primarily rely on the close cooperation and coordination between MofCOM and NHFPC.

Rethinking of Chinese health assistance

In the past 60 years, China's health assistance actions are project based. To make the health aid more effective for the health systems in African countries, a more strategic, predictable, integrated and systematic approach should be considered.

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Challenges in assistance for health facilities construction

During the interviews, it is reported that some African recipient countries have no instruments to maintain the aided health facilities.

For anti-malaria centers, there is limited information available except Comoros.

First, the gap between African demand and Chinese supply should be leveraged. For example, the construction of health infrastructure should be demand-driven, but not request-driven. The most hospitals that China has built for African countries are in unified function and scale, most are small general hospitals with 100 to 150 beds, so there is a lack of understanding on the real needs of African countries.

Second, there is no integrated health assistance strategy. The different assistance projects, including China Medical Team's assistance, clinical medicine cooperation efforts, health HR development and other assistance programs are fragmented and lack alignment and coordination strategy.

Third, some of those hospitals funded and/or constructed by China are now in poor operation or contracted out to third parties.

Fourth, China is still facing a lack of diversified means and methods to provide health assistance to Africa and limited assistance channel.

New trends of China's health engagement in Africa

Health becomes one of China's focus areas in Africa. China's health cooperation with Africa includes building hospitals and medical centers, donating drugs, dispatching medical teams and training of African health professionals.

China's new commitment on health development assistance included:

September 2015: High Level Roundtable on South-South Cooperation on UN Summit and the Global Summit of Women: China will provide \$2 billion to carry out "six 100s" initiatives, including building 100 hospitals and clinics; 100 maternal and child health projects; and providing 120,000 opportunities and 150,000 scholarships for citizens of other developing countries to receive training and education in China and help nurture 500,000 professional technicians for the rest of the developing world.

October 2015: The 2nd Ministerial Forum of China-Africa Health Development endorsed the Cape Town Declaration and Framework of Implementation.

October 2015: China-Africa health agreement signed in October: 100 new hospitals and clinics in Africa, and encouraging "10 large Chinese pharmaceutical and medical equipment enterprises" to co-operate with African counterparts.

December 2015: Johannesburg Summit of FOCAC: China-Africa public health cooperation plan has been listed as one of 10 major China-Africa cooperation plans for coming 3 years. In the health Memorandum of Understanding (MOU) China signed with South Africa. Knowledge and skill exchange becomes key.

China's medical investment in Africa

Current Situation of China's medical investment in Africa

Compared with China's health aid which has around 60-year experience, the history of China's medical investment cooperation with Africa time is much shorter, starting in the mid-90s of the 20th century.

(1) China's medical investment in Africa is still at initial stage

The first medical investment project of China's pharmaceutical enterprises in Africa was the "Shanghai-Sudan Pharmaceutical Co., Ltd." (SSPC), established in 1996 by Shanghai Pharmaceutical Co., Ltd. (SPC) and Sudanese state pharmaceutical company (CMS) in Khartoum, Sudan.

China's medical investment has not yet established in the African mainstream pharmaceutical market. So far, there are all together five Chinese pharmaceutical companies invested in six pharmaceutical factories covering six African countries, namely Sudan, Côte d'Ivoire, Ghana, Nigeria, Madagascar and Mali. Except for Nigeria, other 5 African countries have relatively smaller national economy and backward industrial system, in comparison with African major pharmaceutical production countries, such as South Africa, Egypt, Morocco, Kenya etc. Besides, the scale of the six pharmaceutical manufacturers is small and the production of pharmaceutical formulations is simple.

Furthermore, except for Madagascar Pharmaceuticals Ltd. and Shanghai-Sudan Pharmaceutical Factory, the rest of the China-invested pharmaceutical companies are located in West African countries, including Ghana, Mali, Côte d'Ivoire and Nigeria. Generally, the West African region is plagued by backward infrastructure, lack of supporting industry and to be developed market. The reason why Chinese enterprises decide to invest in West Africa pharmaceutical projects can be ascribed to following factors: First, China sees the investment gap in West Africa as investment opportunity. Despite its huge basic demand for drugs, West African countries are ignored by European, American and even Indian healthcare investors for the low profit margins. This left an investment gap for Chinese companies to fill in. Second, China's advantage in production of antimalarial drugs, antibiotics, syrup, infusion and other general drug meet the urgent need of West African countries. China's advanced production technology and low cost drugs are attractive to West Africa market. Third, Chinese pharmaceutical companies want to reach the whole West African region by taking use of the drug filing system of West African Economic Community and short-distance transport advantage.

In summary, China's current pharmaceutical investment in Africa is neither in the mainstream markets, nor in the key areas of African pharmaceutical production. Also, there is no Chinese M & A investment for African large-scale healthcare companies. This reveals the fact that China's medical investment in Africa is still in the initial and exploratory stage.

(2) The main Chinese healthcare investors in Africa are state-owned big pharmaceutical enterprises and overseas engineering companies.

There are mainly two types of Chinese enterprises investing in African healthcare market: first, the large pharmaceutical groups, such as Shanghai Pharmaceutical Co., Ltd., Yue Kang Pharmaceutical Co. and Human Welfare Co. (人福医药). For those big companies, going out to Africa is regarded as an important step for their “going out” strategy. But the overall pace of Chinese pharmaceutical enterprises investing in Africa is still slow. This is mainly affected by the following factors: First, the incentive and motivation for Chinese pharmaceutical enterprises to invest in Africa is not enough, especially compared with the huge domestic pharmaceutical market within China. Second, it is hard to form the scale production of pharmaceuticals in Africa because that the most African countries boast a small population and a small market size. This makes the investment hard to be profitable in the near future. Third, when deciding the place to invest, Europe and the United States, with mature market economy and regulations, are preferred over Africa as investment destinations. Fourth, to set up pharmaceutical factories in Africa requires the supporting industry chain, but it is still lacking in Africa. This explains why Chinese pharmaceutical companies prefer drug exports, instead of building up pharmaceutical factories.

The second category of Chinese enterprises investing in African pharmaceuticals is large overseas engineering enterprises, which gathered experience and knowledge about the African country after years of contracting engineering. For example, China Overseas Engineering Co., Ltd. has invested in two pharmaceutical manufacturers in Côte d'Ivoire and Madagascar. Those engineering enterprises, which accumulated social resources in the long-term overseas operation and project construction process, identified the investment opportunities of African pharmaceutical industry and thus invested in small and medium-size pharmaceutical factories. However, there are some limits for engineering enterprises to invest in the pharmaceutical industry. On the one hand, the capital is limited. The pharmaceutical industry is capital and technology intensive, especially the capital demand for investment in high-standard modern delivery and logistics chain is huge. Lacking sufficient financial support, the engineering enterprises can only invest in small and medium pharmaceutical companies in African countries which make it hard to enlarge the scale. On the other hand, the sustainability of those pharmaceutical factories invested by engineering companies is problematic. Engineering enterprises, though has advantage in the infrastructure construction, are not professional in other process of the pharmaceutical industry, e.g. high quality control, certification, market channels, distribution, research and sales. Therefore, it is difficult for engineering enterprises to make their investment in medical projects sustainable.

(3) China's medical investment in Africa are falling in the trap of price competition
At present, China's investment in African pharmaceutical production is still limited to establishment of the basic production lines, in order to meet the local needs of basic drugs, mainly infusion, antimalarial drugs, anti-inflammatory drugs, analgesics, etc. From Chinese aspect, China has large infusion production capacity surplus and the domestic competition is serious. From the African side, the conditions to expand the scale of production are favorable. For example, the import threshold of ordinary

infusion is low. Beside, some West African countries (such as Nigeria) have a certain level of local pharmaceutical production capacity and the local government is pushing the local pharmaceutical companies to meet the production quality management standards made by the International Health Organization (WHO).

It is an important feature of African medical market that a large number of medical enterprises focused on the low-end basic medicine market to compete for prices. This is related to the weak economic situation of many countries and the narrow market space. Moreover, the African market is not yet mature, the coverage of medical insurance is low, and the proportion of residents paying medical costs at their own expense is high, which makes price very sensitive. This easily leads to the price war of Chinese medical products. Therefore the low-end medical products are facing fierce competition in African pharmaceutical markets.

Prospects for Chinese medical companies to invest in Africa

It is expected that more Chinese pharmaceutical companies become potential investors in African medical markets. According to the statistics from the Chinese Ministry of Commerce, in addition to the before mentioned 6 medical companies, e.g. Shanghai Pharmaceutical Group, Human Welfare Pharmaceutical Co., there are still 17 Chinese medical companies operating in Africa, doing trade, sales and after-sales service, marketing and consulting business. For example, Beijing Huali Ketai Pharmaceutical Co., Ltd., which sells series of artemisinin antimalarial products in the international pharmaceutical market, including "Ketai new", "Ketai complex" and etc. Huali Ketai Co. now is in the strategic transformation stage, focusing on the artemisinin industry and reaching to business portfolio of plant drugs, chemical drugs and medical equipment. Africa is identified as the basic market for Huali Ketai Co. At present, the company has set up subsidiaries in Kenya, Tanzania, Uganda and Nigeria.

Establishing subsidiary offices in Africa is regarded as an effective way for small and medium medical enterprises to open the international trade channels and further increase medical product sales. To successfully sell medical products in Africa, there are two conditions: First, the pharmaceutical products have to go through the pre-qualification of the World Health Organization (WHO PQ) or other international health organizations, e.g SRA FDA. Until June 2014, there have been 497 pharmaceutical products have been through PQ, whereby only 14 Chinese products have attained the PQ. 70% of the PQ products belong to India medical companies.²

Second, medical companies have to establish closer cooperation to local health system to open the market for pharmaceuticals. Through their offices in Africa, Chinese medical companies are familiar themselves with the market channels in Africa, which serve as preparation to further open factories in Africa.

Overall, in recent years, China and Africa in the pharmaceutical trade continues to grow at the same time, the domestic pharmaceutical companies gradually deepened the understanding of the African market, some with international competitiveness, the relatively high degree of internationalization of pharmaceutical companies in Africa set up a sales company, Dispatch sales representatives, opened up marketing channels, and

² 中国医药保健品进出口商会, 2015.

a few companies began to try to invest in Africa to set up factories for pharmaceutical production, packaging and sales.

Difficulties and challenges for Chinese medical investment in Africa

(A) Problems from Chinese perspective

First, the Chinese pharmaceutical companies, due to their limited scale of funds, technical strength compared with developed countries, have little control of the African pharmaceutical market. In the current world pharmaceutical industry, Europe and the United States are on top, followed by second-tier countries like Japan, Germany, Switzerland, Ireland, Denmark, France and the United Kingdom and third-tier countries like Canada, Italy, Belgium, Israel, Spain, India, South Africa and etc. With strong capital and technical strength, large multinational groups promote the globalization of the pharmaceutical industry through merge and acquisitions in the global scope and increase in market share.

Looking at the location of large pharmaceutical companies, among the world's largest 50 pharmaceutical giants, 48 gathered in the United States, Japan, Europe and other developed countries. According to the 2014 ranking of annual turnover of large pharmaceutical companies, the world's 50 largest pharmaceutical companies are seated in the pharmaceutical, biotechnology, medical diagnosis, medical equipment and other sub-sectors, among which there are 16 companies from US, 9 from Japan, 5 from Germany, 3 from Switzerland, 3 from Ireland, 2 from UK, 2 from France and 2 from Denmark. However, there is no single Chinese pharmaceutical company is on the list. Compared with U.S, Europe and other emerging economies such as India in the African pharmaceutical market, Chinese pharmaceutical companies have inherent deficiencies in their own financial and technical strength, which greatly affected their international competitiveness in the African pharmaceutical investment market.

Second, China's pharmaceutical regulatory system is fragmented, so there is no department in charge of overseas investment in medicine. The overlapping of the regulatory system is a long-existing prominent problem. In the current Chinese pharmaceutical regulatory system, the National Development and Reform Commission is in control of the pricing of pharmaceutical products, the National Health and Family Planning Commission manages the drug tender in domestic public hospital, China Food and Drug Administration is in charge of the quality of domestic products. Different ministries exercise supervision within the boundaries of their respective administrative powers. Moreover, the supervision of the ministries is aimed at Chinese domestic market.

Therefore, there is no one department in China has functions and driving force to promote the Chinese pharmaceutical companies abroad. The going out of Chinese pharmaceutical companies is in the lack of policy support. At present, the foreign investment and export of pharmaceutical companies enjoy basically the same guiding policies as other manufacturing enterprises, while the pharmaceutical industry itself has its peculiarities, which needs more support in pre-market development, drug registration certification, medical standards, etc. To further promote the Chinese medicine to the outside world, the relevant Chinese departments have to study and improve the policy

system, in order to strengthen the government support and services.

Third, the Chinese pharmaceutical companies regard more on production, but less on circulation, leading to the inadequate investment in key areas of African investment. In the international operation process of pharmaceutical industry, the production process is not the key to competition. The core competitiveness is reflected in the R & D and logistics, sales, channels and other sectors. However, the current competitiveness of Chinese enterprises is mainly reflected in the production and cost control. In terms of production capacity, there are about 5,000 raw materials and pharmaceutical production enterprises in China. The annual output of Chinese vaccine is more than 1 billion doses, with the vaccine production and exports ranking top in the world. A variety of anti-AIDS drugs produced in China supplied to developing countries, including Africa, at the world's lowest cost.

However, China suffers big shortage in the marketing and circulation is key competitiveness to pharmaceutical industry. The core competitiveness of Chinese enterprises are in the production process, especially the cost control is even better than Europe, the United States and even Indian enterprises. The overall disadvantage of Chinese enterprises lies in the field of marketing. Generally, enterprises do not attach importance to the marketing process and have little contact with international organizations such as the World Health Organization. Thus, China's pharmaceutical industry is lagging behind in international market development. Compared with India , it is more difficult to see agents of Chinese drugs in Africa. But Indian pharmaceutical companies have agents in major African countries, from government procurement, to drug wholesale and street pharmacies. Moreover, Indian companies also provide trade credit for agents, while Chinese companies rarely provided credits. In addition, the Chinese medical enterprises pay less attention on the international public relations. Due to inadequate talent reserves and limited capacity, most Chinese pharmaceutical companies do not consider it as a priority task to enter the purchase list of World Health Organization and other international organizations.

Fourth, Chinese pharmaceutical companies rely too much on the domestic market, while lack impetus and capacity in the development of international market. With the boom in domestic pharmaceutical market in recent years, most Chinese pharmaceutical companies focus on the domestic market. Inadequate engagement in overseas market seriously affected the internationalization of Chinese pharmaceutical companies. Chinese enterprises are not good at international standards applications, pharmaceutical localization, including packaging and design, as well as preparation of "General Technical Documents" (CTD). In recent years, African countries made huge progress in drug test. Many African countries began to establish their own test laboratories, or in cooperation with the developed countries, with regulatory standards basically copied from Europe and the United States. All these changes compose challenges for the internationalization of Chinese pharmaceutical companies.

As of the end of 2013, only more than 30 Chinese pharmaceutical companies have drugs pharmaceuticals passing through the certification of Europe and the United States. Most of the 30 companies only earn processing fees through commissioned by processing, OEM, etc. to. Those have gained new drug application (ANDA) number approved by

the US Food and Drug Administration (FDA) approved and export drugs with their own brands are less than 10. At present, there is no single Chinese pharmaceutical company listed as the world's top 100. The overseas sales of the preparation accounted for 10% of the overall Chinese pharmaceutical sales. The major approach of Chinese pharmaceutical companies' overseas business is relying on partners, but rarely building their own business team abroad. Although China's pharmaceutical companies started to establish a small number of joint venture pharmaceutical companies in Africa and other developing countries, but rarely engaged in mergers and acquisitions in developed countries. Those Chinese pharmaceutical enterprises to enter African markets often choose the African countries with not yet matured small economies. This also reflects that China's pharmaceutical investment enterprises have limited market development capacity and willingness to invest in the international pharmaceutical industry. Without China's pharmaceutical brands established, China is still in the low-end of the international pharmaceutical industry chain.

(B) From the African perspectives

First, the recognition of China's pharmaceutical in African market is still low and the lack of after-sales service system led to the difficult in opening up the medical device market. The World Health Organization, the United States, Europe and even Japan's pharmaceutical product standards have been widely recognized by African countries, but the Chinese standard has not yet been recognized. China and Africa, despite years of public health assistance cooperation, the recognition on Chinese pharmaceutical brands is low both on the African government level and among the African people on. In the future, there remain a lot of work to do in terms of standards connection, market development and medical system strengthening.

Regarding medical equipment, an advantaged sub-sector of China's pharmaceutical industry, African countries generally reflect that the Chinese medical device manufacturers did not actively move forward to their market and there is a lack of after-sales service system. This affects the image of China's pharmaceutical industry in Africa. The problems are reflected mainly in two aspects: First, China's medical device products do not meet the local needs in Africa. The design of medical devices does not meet the habits of African medical workers. Some medical equipment entering African market through exports or aid even use the Chinese panel and Chinese electrical standards, which need to be modified in Africa to use. Second, the sustainability of medical devices relies on the follow-up medical services and pre-sales training, which both are an indispensable process of the whole service system. Due to the lack of after-sales service system, once the Chinese product is in defect, it cannot be maintained in Africa. That is why the African medical institutions like the cheap Chinese medical equipment but have to give up using them. This affects the brand image and market development of Chinese pharmaceuticals.

Second, because the African pharmaceutical market is highly fragmented, it is difficult for medical investment to build regional markets. Every African country has its own pharmaceutical production and circulation supervision system, and does not recognize those between each other. Now, although the African Union has begun to build an unified African pharmaceutical regulatory organization, but the unified African medical

standards are still far away. It is uncertain that the unity of African pharmaceutical regulatory standards can be achieved in the future. The lacking of “African Standard” or sub-regional standards in the pharmaceutical industry makes it difficult to integrate neighboring countries to achieve scale economies. The size of a single African country’s domestic market is difficult to support the enterprise capacity. In terms of certification and market development investment, there is no huge difference for Chinese pharmaceutical companies to set up factories in Africa or export drugs to Africa from Chinese production base. Therefore, these to a certain extent reduce the enthusiasm of Chinese enterprises to invest in African medicine market.

Furthermore, for most African countries with small population and less developed economy, there is limited market demand for specific drugs. In order to enter the drug market of any African country, it is time-and-energy-consuming for certification, registration and opening up the market in accordance with local regulatory requirements. In most African countries, the pre-investment is huge while the income is small, which makes Chinese pharmaceutical companies hardly willing to open up the African market. Without the trade going first, the investment of Chinese medical in Africa lacked the basis of market recognition.

Third, Africa, with huge shortage in infrastructure and human resources, has to improve logistics and market system. Compared to other manufacturing, the pharmaceutical industry investment in Africa has even higher demand to infrastructure and human resources supply. First, the production of drugs requires more sustainable and stable supply of water, electricity and gas. Especially when invested in high-standard pharmaceutical companies, more strict process must be followed. Second, the pharmaceutical industry belongs to precise chemical industry and requires high-quality of human resources. It is difficult to recruit adequate professional local staff is also more difficult. Third, the African countries have no complete supporting industry. Some countries even need to import the most basic packaging plastic, aluminum foil, package bottles and so on, which makes it hard to reduce the production costs.

In addition, Africa lags behind in construction of domestic pharmaceutical trade logistics center and a number of African countries have no real pharmaceutical trade and circulation market. The existing infrastructure for pharmaceutical market and health conditions behind are backward, especially for those biochemical drugs and vaccines which need cold-chain logistics.

Fourth, most African countries market trap in the vicious cycle of low-end competition, so it is difficult to open markets for the new drugs. Besides big countries like South Africa and Egypt, the majority of African countries suffered from the vicious competition of low-end medicine and old drugs in the medicine markets. In other words, among Chinese enterprises and developed countries, among Chinese enterprises, there is vicious competition in the old drug market in Africa.

In fact, the future development of Chinese pharmaceutical companies counts on the middle and low varieties of new drugs. If the African medical market and patients recognize the new drugs, there will be great market potential.

(C) From international perspectives

At present, the sale of pharmaceutical products in Africa are mainly from the following

three categories: 1) Large-scale pharmaceutical companies from developed countries which accounts for about 70% of the African pharmaceutical market share, such as Pfizer, Abbott, Novartis, Roche and GlaxoSmithKline. Those pharmaceuticals monopoly with a large number of patented drugs have occupied the high-end pharmaceutical market in Africa. European and American drugs enjoy good reputation in the high-end market in Africa.

2) The pharmaceutical companies from developing countries (except for African countries) account for about 20% of the African pharmaceutical market. In recent years, with the rapid development of the pharmaceutical industry in Brazil, India and China, they actively engage in drugs export to and pharmaceutical production in Africa. Among them are the well-known Indian companies, such as South New, Nguyen and etc. Indians are active in either pharmaceutical trade or investment areas. In fact, in terms of efficacy and quality, the distinction between Indian and Chinese medicines is not significant, but the price and channel advantages of Indian medicine are obvious. That is why the Indian pharmaceutical companies have occupied an important position in the African low-end market. India's drug price advantage in Africa mainly comes from its scale, patent system and government support. The Indian government supports drug companies to imitate the Western pharmaceutical companies' patented drugs. The prices of Indian generic drugs with similar efficacy account for only 10% to 40% of Western patents. Due to cheap prices, India's generic drugs are welcomed by low-income countries, international organizations and charities. At the same time, Indian pharmaceutical companies are making further efforts in opening the African market, whether through government procurement, the international community donations, or private pharmacies. In many African countries, there are large private pharmacies opened by Indians. Thus, with the Indian pharmaceutical companies penetrating in African pharmaceutical market through trade, investment, etc., China's low-end drug sector will face strong competition from Indian companies in the future.

3) The third group is the African local pharmaceutical companies, which accounts for around 10% of the African pharmaceutical market. The vast majority of African local enterprises are small-scale private business. But it is notable that in recent years, African countries have deepened understandings on the strategic importance of pharmaceutical industry and began to put forward the localized production of pharmaceutical industry. With the increasing localization of drugs in African countries, China is facing bigger challenge to open up the African market.

Policy Recommendations

Importance of health cooperation with African should be recognized. According to a Pew survey in spring 2015, the shared number one priority for African countries continues to be health care³, which was included in three of the MDG Goals and continues to be stated in the SDG Goals in SDG 3: "good health and well-being."

Concrete suggestions are as follows:

³ Source: Pew Research Center Spring 2015 Global Attitudes survey. For more information, see <http://www.pewglobal.org/2015/09/16/health-care-education-are-top-priorities-in-sub-saharan-africa/>

For health facilities:

- Priority should be given to upgrading or rebuilding existing health facilities constructed by Chinese government. In the future, decisions to build new health facilities should be made based on the real needs of the African countries.
- Griding design of the health facilities distribution, strengthen several specialized clinical department in small general hospital.
- Enhance health capacity building for African countries. Cooperate with local medical university and schools, conduct clinical standardization training for residential doctors.
- Coordinate and link with maternal and child health projects, public health assistance projects and clinical medicine cooperation projects.
- Make use of new technologies to help improve health accessibility in African remote areas.

Approaches for the health capacity building

- Based in the national, regional or district hospital built by China and cooperate with local medical universities, schools and teaching hospitals.
- Training can be provided to local health personals by Chinese Medical Team, Brightness Trip and other short term technical support.
- The forms of health capacity building can be organizing seminars and delivering lectures and etc.
- Explore the way of training services purchasing by selecting local training institute and faculty to establish specialized training centers under the partnership of China and African countries.
- Explore e-learning and telemedicine possibilities.

Improve the existing health aid measures

- 1) Systematically employ different assistance methods to ensure sustainable development of already-built health infrastructure
- 2) Make dynamic adjustments on the list of ODA products.
- 3) Develop new topics on human resource cooperation programs to increase effectiveness

Innovate the future health cooperation:

- 1) Go beyond traditional health aid to share the China's experience in healthcare development based on African real demand
- 2) Diversify the health aid channels to involve enterprises, healthcare institutions and CSOs.
- 3) Innovate healthcare financing methods, such as PPP, and special concessional loans for healthcare products.
- 4) Adapt latest information technology to China's health cooperation with Africa, e.g. distance healthcare, IT+ methods etc.

For investment in African pharmaceutical market:

(1) Build up inter-ministerial coordination mechanism

- To establish China's "Pharmaceutical Internationalization Promotion Center". To build up inter-ministerial coordination mechanism among State Food and Drug Administration, the ICPM, the NDRC, the Ministry of Commerce, the Ministry of Foreign Affairs and the General Administration of Customs and other relevant ministries.

- To strengthen coordination with international organizations, African regional organizations and African countries for PQ standards and certification.

- To make country-specific guideline for pharmaceutical investment in Africa. To strengthen the research and tracking of the African pharmaceutical market on their market capacity, competitive situation, regulatory policy, access threshold, preferential policies, infrastructure and other soft and hard conditions and choose key partner countries

(2) Make pharmaceutical industry a key area of "international production capacity cooperation" to enhance the level of Sino-African medical cooperation.

At present, China lists Ethiopia, Kenya and Tanzania as key pilot countries for the international capacity cooperation strategy. China's pharmaceutical industry now is facing challenges of transformation. In the meantime, African countries are in urgent need of pharmaceutical development. China should provide more policy support for medical investment in Africa.

(3) Seize M&A opportunity in African pharmaceutical market

In recent years, India, the Middle East and South Africa enterprises have achieved rapid growth in Africa through the acquisition of local pharmaceutical companies. China should encourage pharmaceutical companies to pay attention to M&A opportunities in South Africa, Egypt, Kenya, Nigeria and other countries, in order to enter African mainstream pharmaceutical companies.

(4) Explore the feasibility of establishing pharmaceutical industrial parks or large pharmaceutical companies in Africa.

Currently, most Chinese investors in African pharmaceutical companies are small-size enterprise with single product, which are difficult to achieve economies of scale and scope. In the future, in African countries with relatively better infrastructure and pharmaceutical patent system, China can explore the possibility to establish pharmaceutical industrial parks or large pharmaceutical production bases, in order to integrate the development, production, packaging, logistics and other upstream and downstream enterprises of pharmaceutical industry. Preferential policies should be provided to increase the investment in African medical markets.

(5) Support African countries establish regional drug standards

Drug certification and the fragmentation of African pharmaceutical companies are major barriers for Chinese pharmaceutical companies to enter Africa. Therefore, China should help establish the Pan-African medical standards and engage in the making of African regional and sub-regional standards.

(6) Strengthen the financial support for medical investment to enhance the investment capacity of Chinese enterprises

Compared to other manufacturing projects, medical investment projects has longer

investment cycle to go through the factory inspection, drug approval, registration and other regulatory process.

- Explore the feasibility of providing risk subsidies for medical investment to ease the pressure on corporate funds.
- Set up a specific fund for the going out Chinese pharmaceutical companies as policy support.
- Encourage financial institutions to innovate financing products to support enterprises to invest in the African pharmaceutical industry.
- Set up a special sub-fund of China-African medical investment under the China-Africa Development Fund.

(7) Build up the international brand and image of Chinese pharmaceutical products and enhance the recognition of Chinese medicine in African market.

The internationalization of Chinese medicine is the first process of establishing the international brand of Chinese medicine. It is imperative to make the "African brand" of Chinese medicine safe, efficient and cheap.

- Support Chinese pharmaceutical companies to participate in various international health products exhibition.
- Change the old propaganda approach and report the typical Chinese case in the international media.

(8) Guide the pharmaceutical enterprises to build and share the African after-sales service system. China should support pharmaceutical companies to establish after-sales service network in key African countries.

(9) Help Africa establish pharmaceutical logistics center to improve the supply chain of African pharmaceutical sector

(10) Strengthen government support for the overseas investment of Chinese pharmaceutical enterprises

- Provide support for coordination and communication between Chinese companies and international organization such as WHO.
- Achieve mutual recognition between China and relevant African countries, e.g. South Africa, Nigeria and Egypt.
- Provide capacity building for pharmaceutical companies to "go out" to Africa. Relevant ministries and industry associations, including Development and Reform Commission, Ministry of Commerce, Ministry of Foreign Affairs, Food and drug supervision and management of the General Administration of Science and Technology Commission and the General Administration of Customs, should jointly provide training for companies.
- Provide guidance on the registration of pharmaceutical products in Africa.

(11) Combine health aid and investment.

- Integrate China's aid of construction of hospitals and related infrastructure, medical teams with medical investment and trade. China's construction of roads, electricity, water supply and other infrastructure projects can be considered combined with medical investment projects for site selection and construction.

- Enhance the training for African medical workers. Without the recognition of African local doctors and medical workers, Chinese pharmaceutical products cannot enter

Africa. China has a long-term policy to provide scholarship for African students to study in China. In the future, proportion of African students studying in medicine in China should be increased to make African doctors and medical educators being familiar with Chinese medical standards, technologies and products.

Project report

Changes and challenges of the project

According to the project proposal, field study should be conducted in three African countries. However, the regulation on foreign visit has become stricter during the project process. The field study to Africa has to be changed.

The project holder has been visiting Germany from 13 August to 27 November. Therefore part of the study was shifted to comparison of Chinese and European health cooperation with Africa. The project holder took the opportunity to research literature in Europe and conduct interviews with European official, experts and private sector involving in African health sector. The main output of this project is the publication in a core China journal titled with “China-UK security cooperation”, with health mentioned as an area.

Outputs:

Zhou Jinyan, “Innovating assistance for greater investment”, *ChinAfrica*, Vol.8, March 2016

Zhou Jinyan, “China and the UK in African security: towards convergence?” October 2016, part of Friends of Europe’s Discussion Paper “Europe, China and Africa : new thinking for a secure century”

Zhou Jinyan, “Performance Platform: China pushes development agenda at the G20 Summit in Hangzhou”, *Beijing Review*, July 2016

Zhou Jinyan, “From Hangzhou to Hamburg: Africa at the Center”, *Chinafrica*, August 2017.

周瑾艳：《中英非和平安全合作的前景与挑战》，《国际展望》2016年12月。

周瑾艳：《德国与非洲安全合作的新动向及发展趋势》，《西亚非洲》2017年第5期

Conferences and trainings attended

Managing Global Governance Program, German Development Institute, Bonn, August to November, 2016. (Funded with other resources)

CPhI, ICSE & PMEC China Innovation and Development Forum, Shanghai, June 21-22, 2016.

Training for Health Development Assistance Consultation held by National Health and Family Planning Commission Health Development Research Center, Beijing, December 5 to 9, 2016.

Raisina Dialogue, India, 17-19 January 2017. (Funded with other resources)

T20 Conference, South Africa, Feb 1-3, 2017. (Funded with other resources)

List of Interviewees and conference speakers

Annegret Al-Janabi, Senior Policy Officer, German Federal Ministry for Economic Cooperation and Development

Dong Shengli, ICDNC for Women and Children's Health, China CDC

Guan Yayi, Institute of parasitic diseases Shanghai CDC

Liu Wei, Kunming Medical University

Lu Hong, Peking University School of Nursing

Richard Manning, former chair of OECD Development Assistance Committee.

Thomas Fues, German Development Institute

Martin Greeley, Institute of development studies.

Sven Grimm, German Development Institute

Christine Hackenesch, German Development Institute

He Chunhong, Director of International Cooperation of CCCMHPIE

Song Jianping, Guangzhou University of Chinese Medicine

Joan Kaufman, Columbia Global Centers/East Asia

Niels Keijzer, German Development Institute

Julia Leininger, German Development Institute

Martin Taylor, WHO China Office

Xu Tongwu, technical consultant of GHSP

Wang Chen, Chinese Academy of International Trade and Economic Cooperation, MOFCOM

Wang Li, Shanxi Center for Disease Control and prevention

Wang Luo, Director, International Development Cooperation Institute, CAITEC

Wei Wei, Guangzhou Faduocity and public benefit research center

Jane Xing, Deputy Director of Strategy Planning and Investment of Bill & Melinda Gates Foundation, Beijing Representative Office

Xiong Yanjie, Shanghai Fosun Pharmaceutical (Group) Co., Ltd.

Yang Hongwei, Deputy Director, NHDRC

Wenhai Yu, Director of Asia & Africa Division of Export Trade Credit Underwriting Department of SINOSURE

Zhao Pei, Shanghai International Studies University

Zhou Kai, UNAIDS China

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Karen A Grépin, Victoria Y Fan, Gordon C Shen & Lucy Chen, "China's role as a global health donor in Africa: what can we learn from studying under reported resource flows?" *Globalization and Health*, 2014, Volume 10, Number 1.

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北京大学全球卫生研究中心主编:《探索新型中非卫生合作》, 世界知识出版社, 2013 年。

Peking University Institute for Global Health (IGH) & The World Bank. (2012). 《全球卫生时代——中非卫生合作与国家形象》, 世界知识出版社.

迟建新:《中国参与非洲公共卫生治理: 基于医药投资合作的视角》,《西亚非洲》2017 年第 1 期。

王忱等:《援助在促进非洲医疗卫生体系建设方面的关键作用》.

徐彤武:《全球卫生的“中国困境”——危机当头, 出路何在?》,《国际政治研究》2017 年第 1 期。