China Health Reform Program For Results

(P154984)

Environmental and Social Systems Assessment (ESSA)

April, 2017

Prepared by the World Bank

Acronyms and Abbreviations

CHSI	Center for Health Statistics and Information
DLI	Disbursement-Linked Indicator
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EPB	Environmental Protection Bureau
HCF	Health Care Facilities
HFPC	Health and Family Planning Commission
HRH	Human Resources for Health
IDS	Integrated Health Service Delivery System
MOF	Ministry of Finance
MoHRSS	Ministry of Human Resource and Social Security
NDRC	National Development and Reform Commission
NHFPC	National Health and Family Planning Commission
PAP	Program Action Plan
PforR	Program for Results
PHC	Primary Health Care
PTF	Program Task Force
QA	Quality Assurance
SCHRO	State Council Healthcare Reform Office
THC	Township Health Center
WHO	World Health Organization

Table of Contents

Executive Summary

i. The PforR is expected to bring about positive environmental, social and health benefits in terms of providing improved health services to the public and communities, particularly in rural poor areas. Along with these, it is expected that standardized hospital management practices for medical waste, occupational safety and health, and that the collection and transportation of medical wastes in rural areas will be improved.

ii. Nonetheless, some of the activities supported under the PforR have potential negative impacts and risks. Medical waste management and radiation risks are considered the main issues from environment, health and safety perspective. This Environment and Social Systems Assessment (ESSA), prepared by the Bank team, provides a comprehensive review of relevant environmental and social management systems and procedures in China and the two provinces, identify the extent to which the country/local systems are consistent with PforR Bank Policy, and Directive, and recommend necessary actions to address potential gaps as well as opportunities to enhance performance during the PforR implementation.

Potential Environmental and Social Impacts and Risks

Environment

iii. In healthcare facilities, the medical wastes are collected, packaged by medical workers and temporarily stored at designated places. A special unit (mostly the infectious prevention unit) is responsible for providing technical guidance and day-to-day supervision. The collection, transport and disposal of medical wastes are carried out by specialized companies in both provinces. In each prefecture, a medical disposal facility (incinerator) is in place to serve the prefecture and their disposal capacity is considered adequate but inadequate operation of disposal centers may produce air emissions bottom slag and fly ashes. The waste management can be compromised owing to low awareness or technical knowledge, inadequate equipment or storage capacity, or lack of supervision, considering that the PforR will aim to expand lower level healthcare facilities in townships, villages, some of them located in remote rural areas.

iv. Radiation equipment including medical imaging and radiotherapy facilities are widely used in county and above level hospitals and healthcare facilities. If not well managed, radiation and/or radiation contaminated materials (including paper, medical gloves, etc.) will be a great concern for the medical workers, public and community health and safety. In particular, if the healthcare facilities are located in core urban areas with dense population. In addition, the handling of radioactive source and decommissioning of old radiation equipment is another concern if not done properly.

v. The PforR includes upgrading, rehabilitation and/or new construction of healthcare facilities at the county level, township and village levels. The scale of the physical structure may range from small structures, such as test centers, to relatively large ones such as health recovery center or hospital in county seat (typically class II hospital). Potential environmental and social impacts associated with the construction of physical structures, and the operation of existing or new healthcare facilities, include: dust, noise, non-hazardous solid waste, wastewater, and social disturbance such as traffic safety and congestion, and construction safety concerns. These impacts are envisaged to be moderate, temporary, or site-specific and can be mitigated with readily available measures.

Social

vi. The main social issues considered during the assessment, include social risks, potential negative effects, and potential impacts of the PforR, related to: (i) introduction of policy reforms; (ii) accessibility and equity; (iii) public participation; (iv) land acquisition and resettlement; and (v) ethnic minorities. The impact of land acquisition is usually the most relevant and predictable negative impact of such programs. Nevertheless, the overall impact of land acquisition under this PforR appears to be limited in scale and moderate in degree.

vii. Thus, these social impacts and risks are considered moderate, and suitable to activities to be supported by the PforR according to the Bank's PforR Directive and Policy.

Assessment of Legal and Institutional Framework applicable to the PforR

viii. A comprehensive review of the legal and regulatory framework for social, environmental, safety and health protection relevant to the activities supported under the PforR was conducted, including their implementation, institutional performance and capacity, and comparison with the World Bank PforR Policy, and Directive.

ix. The national and regional legal framework is comprehensive and provides a full coverage over the main environmental and social effects of the PforR. China has established a comprehensive system for the management of environment, occupational health and safety (EHS), and social issues, which consists of laws, regulations, guidelines and specifications and standards. This system provides a reasonable basis for addressing the environmental and social issues related to activities supported under the PforR.

x. Consultations of government departments and site visits to health care facilities in the provinces of Fujian and Anhui at municipal, county and township levels, have demonstrated that the institutional arrangement at the program level have been clearly established and the procedures, e.g. approval, examination and grievance redress, have been well operated and maintained.

xi. The ESSA finds that, in general, the environmental and social management systems to manage the identified environmental and social risks related to the activities to be supported under the PforR are in place, but some improvement should be made to ensure their proper implementation.

Environment

xii. Specific to the health sector, along with the rapid development and reform of the health sector in the past decades, a set of laws and regulations addressing environmental, health and safety issues in the medical sector have been enacted in China. Through field visits and discussions with authorities and hospitals in the two provinces, it is noted that the waste streams (waste, wastewater and air emissions etc.) in hospitals, the medical waste collection, transport and disposal, and the radiation risks are managed and regulated following national and local regulations.

xiii. *Institutional Responsibilities*. The key PforR stakeholders involved in environmental management include various levels of health and family planning commissions (health bureaus), environmental protection bureau, and medical waste disposal facilities. The assessment finds that the responsibilities and accountabilities of these PforR stakeholders

and institutions are clearly designated. In general, the government agencies are capable of fulfilling their duties, i.e. review and approval of EIAs and various actions plans, supervision and examination, and grievance redress. The procedure for review and clearance, and supervision and inspection, is well designed. Regular monitoring and inspection by the government agencies are performed. The technical capacity of the government organizations relies largely on their expert panels which carries out the review the environmental assessment reports and various action plans and advises on decision making.

xiv. Relevant to the medical waste management and radiation risks that are screened as the main concern associated with the PforR, the following findings are made:

xv. *Medical waste handling, transport and disposal*. New regulations, strong political will and continuous investments, over the past decade or so, resulted in a comprehensive medical handling, storage, transport and disposal system have been established through public investments or Public-Private-Partnership. The system is regulated by a comprehensive legal framework and enforcement authorities.

xvi. In the healthcare facilities in both provinces, it is noted that medical waste categorization system, hospital waste management plan, ad-hoc training program are practiced. Local health bureau and sanitation supervision stations conduct regular supervision on the effectiveness and performance of the in-hospital medical waste management. On the transportation and disposal of medical wastes, it is noted that in each prefecture, a certified company provides services to the prefecture. The disposal facilities (incinerator) use modern technologies for incineration and air pollution control system, and are monitored by local environmental protection bureaus closely. Since each municipality has one centralized medical waste disposal center, the municipal protection bureau carries out regular site inspection and emission monitoring. Sample emission monitoring report were reviewed and results meet applicable emission standards.

xvii. *Radiation Risks*. Documentation, procedures and capacity are in place to manage the radiation impacts and risks. On radiation exposure to medical workers and communities, in healthcare facilities in the two provinces there are proper protection ware and shelter, portable detectors are provided to monitor and control radiation leakage. For medical radiation equipment, radioactive source and radiopharmaceuticals, the licensing, review and assessment, inventory, safe use, work-site detection, monitoring, maintenance, emergency response and decommissioning are specifically required and regulated by HFPC, EPB and Public Security Bureau. For radiation contaminated wastes, specific requirements on collection, separation, storage, packaging, transport, and final disposal are required as well.

xviii. In managing the retired radiation equipment, the practices follow applicable regulations. The users prepare environmental assessment for the decommissioning of radioactive equipment or isotopes for review and clearance by provincial level environmental protection bureau. Radioactive sources which remain the value of use are transferred to other users following the regulations on safety and protection of radioactive isotopes and radioactive equipment. Users return the radioactive source to the producers, the importers or the certified facility for storage. The users are required to submit the request for change or cancellation of the radiation safety certificate in the provincial environmental protection bureau.

xix. Nonetheless, the assessment of disposal of medical waste and radiation risk identified potential weakness that could affect the effective operation of the environment management system in the two provinces: (i) As the PforR extends medical services to remote and poor area, the collection of medical wastes to transport of disposal facilities maybe inadequate due to cost reasons or lack of adequate enforcement; (ii) Lower level (counties and below) healthcare facilities and authorities may be constrained due to lack of adequate staff, training, and monitoring or enforcement tools; and (iii) various levels of HFPCs, EPBs, Public Security Bureaus that are involved in the regulation of environmental, health and safety issues may lack information share and intra-agency coordination. Therefore, the implementation of the existing environmental, health and safety management system, institutional coordination and capacity building should be strengthened, particularly at the low administrative level (namely below county level); and the prefecture and/or county level agencies should have their capacity strengthened to ensure adequate performance of the enforcement systems.

Social

xx. *Accessibility and equity*. One key element of the "Healthy China 2030 Plan" is to establish and complete a basic health insurance and protection system, which is based on basic healthcare insurance, and supplemented with other forms of insurance and commercial health insurance. The basic approach is to effectively integrate social health insurance, catastrophic medical insurance, commercial healthcare insurance and a medical aid scheme in order to develop a matured healthcare insurance system in the country by 2030. In 2009 and 2015, the Ministry of Civil Affairs and State Council issued regulations1 to further improve the medical aid scheme. The scheme provides additional financial support to the low-income populations based on their affordability and actual medical costs to meet their needs of basic healthcare services. The scheme has a stable source of financing, operates according to relevant regulations with effective results. On the supply side, the PforR interventions will include the strengthening of service delivery capacity, with a focus on county level and below. By promoting the integration of social health insurance schemes with the support of MAS and CMI, as well as improving the provision of basic health care services, especially in the poorest rural areas, the proposed PforR should enhance the accessibility of the vulnerable groups.

xxi. *Land acquisition and resettlement*. The Land Administration Law and State Council Decision on Deepening the Reform on Strict Management of Land, are the key legal basis for defining fundamental aspects of the land acquisition system in China. The current legal framework has established a clear procedure for obtaining the approval of land acquisition for investment projects, and managing the land acquisition process, which includes informing the affected people about the purpose, location, compensation rates, and rehabilitation measures for the land to be acquired, confirmation by the affected parties over the outcome of land surveys, and holding public hearings on the land to be acquired. The actual process of land acquisition is handled by the local Land Resources Bureau with assistance from the township government. Based on field visits and assessments of past experience with similar land acquisition procedures in the region, and as long as the

[1] Opinions on further Strengthening the Medical Financial Assistance System in Rural and Urban Areas (Min Fa, 2009 NO.81) and Notice of the State Council on Further Improving the Medical Financial Assistance System and Nationwide Implementation of Medical Financial Assistance for Patients with Serious Illness (Guo Ban Fa, 2015 NO.30)

procedure is followed, the basic interests of affected people were protected. The findings also showed adherence to the principle of avoiding or minimizing displacement and demonstrated that affected people are assisted in improving or at least restoring their livelihood and living standards.

xxii. *Public participation*. Based on review of practices adopted by pilot cities, it seems that the content and details of healthcare reform was widely introduced to the public through different forms of media. The improved coverage of healthcare benefits, particularly to vulnerable groups, and face-to-face interaction enabled awareness about the basic content of reform measures, coverage of basic health insurance, and proposed improvements under the PforR. At the same time, regular visits by different healthcare teams also provided opportunities for residents to voice their concerns regarding healthcare plans. Finally, for those with special issue or complaint on different aspect of healthcare program, they could always make complaint through regular county appeal and complaint office set up in all counties. *Ethnic minorities*. There are more than 400 laws and regulations addressing the legal requirements and stipulations in China. This specific legal framework promotes preferential treatment for minority nationalities in some contexts and equitable treatment of all groups in others. The current legal framework supports the lawful rights and interests of the ethnic minorities and also requires that the affected minority communities like other local communities will be consulted and their support obtained, during the project planning and land acquisition process.

Consultation and Disclosure

xxiii. During the preparation of the ESSA, the World Bank assessment team carried out consultations with representatives from two Provincial Task Forces (PTFs), provincial environment protection and land resource bureaus, as well as officials from local government agencies. In addition to this, the Bank team made field visits to health care facilities of varying sizes and coverage in Anhui and Fujian, particularly county level hospitals and township level healthcare centers, as well as village clinics. The discussions and visits were held with staff managing the facilities, including those in charge of construction and provided good understanding of healthcare conditions in the two provinces, and created the basis for the development of this ESSA.

From February 21 to 25, 2017, public consultation workshops were conducted in 6 venues in the Anhui and Fujian Provinces to receive feedback on the draft ESSA, which was distributed in Chinese beforehand to potential participants and disclosed on the both Provincial Health and Family Planning Commissions' websites (on February 17, 2017). Three consultation workshops were held in each province, one at the provincial level, and the other two at city/county level. The purposes of the multi-stakeholder consultation workshops were to: (a) introduce the Environmental and Social Systems Assessment approach under the proposed Program for Results operation; (b) seek comments and feedback on the key findings and recommendations of the ESSA. In all workshops, participants voiced strong support to the Program. The participants agreed that, overall, the ESSA report is of good quality; the review and analysis of domestic laws and regulations are comprehensive and well-organized; the key environmental and social issues identified are consistent with the reality in general; the assessment of institutional arrangement, capacity and performance is objective; the recommendations made by the ESSA are pragmatic and achievable.

xxiv. Based on the comments, the revised ESSA was disclosed on the external website of the World Bank, on both Provincial Health and Family Planning Commissions' websites, and on the Center for Project Supervision and Management of the National Health and Family Planning Commission's website (on April 12, 2017).

Recommendations

xxv. **Strengthening environmental, health and safety management capacity**. To ensure consistent and adequate EHS management capacity across all levels of healthcare facilities, it is necessary to design and implement protocols for regular training and capacity building of medical workers and HCFs, and ensure coordinated management, supervision and enforcement of EHS issues. These should include:

- Design and implement protocols for providing, replacing and decommissioning safety equipment to, medical workers and the hospital Infectious Disease Control Unit to ensure that they always have access to all necessary equipment in good operational condition.
- Design, implement protocols for periodic training program for hospital presidents, medical workers and the hospital Infectious Disease Control Unit to ensure adequate awareness and skills across all levels healthcare facilities on the proper management of medical waste management and radiation risk control.
- Develop and implement a protocol for regularly reviewing, maintaining, and updating the categorization method of medical wastes, internal management system for medical wastes, exposure control plan for infectious disease and radiation, and firefighting plan, with guidance and supervision from local Sanitation Supervision Station, EPB and Public Security Department.
- Ensure that a system is in place to periodically verify that local healthcare facilities and hospitals have adequate capacity of temporary medical solid storage chamber and the protective gear.
- Strengthen the supervision and enforcement capacity of responsible agencies to ensure adequate supervision of the chain of custody that covers whole medical wastes collection, transport and disposal across all administrative levels (village, township, county and municipality)> particularly attention should be given to the capacity of Environmental Protection Bureaus and Sanitation Supervision Stations to work on remote poor areas.

xxvi. **Improving Public Consultation and Information Disclosure.** To enhance the effectiveness of existing domestic information disclosure and public participation requirements, the following are recommended:

- Improve the public information disclosure system on the environmental compliance of medical waste medical waste handling and safety compliance of radiation risks control, by disclosing the emission monitoring results, waste generation and disposal, and inventory of medical radioactive equipment/sources through government websites and environmental bulletins.
- The draft EIAs of activities supported under the PforR, should be made available for public consultation through posting in publically accessible web portals and/or paper-copy distribution locally.

xxvii. **Enhancing land acquisition monitoring process.** To ensure a consistent land acquisition monitoring process across all activities associated with upgrading and construction healthcare facilities, it is recommended to establish a standard registry procedure with the relevant evidence indicating full compliance with national laws and local regulations, as well as the protection of the interests of the affected people. Any land acquisition under this PforR should be reported in the progress report, including relevant evidence (land use certificates, compensation agreements, land price payments, and land lease agreements with affected parties) and due diligences by relevant local government agencies.

xxviii. **Enhancing Public Participation in Health Reform Implementation.** In order to increase social accountability and address grievance during the implementation of the PforR a public participation plan should be developed based on lessons learned from the pilot cities in both provinces, which defined basic steps, and measures to be taken so that same positive outcome could be achieved during scale-up implementation. This plan should include more proactive public participation, more transparent information disclosure, and more effective grievance procedures.

Other Consideration(s)

xxix. Considering the geographical coverage and the nature of the PforR activities, OP 7.50 International Waterways or OP 7.60 Disputed Territories are not applicable to the PforR.

1. Introduction

1.1. Background

1. The joint flagship health sector study, *Deepening Health Reform in China Building High Quality and Value-Based Service Delivery*, has provided a comprehensive diagnostic, and charted a way forward, on such reform. Many of the key elements of the study's recommendations have been reflected in recent GOC policy directives, including on reforming public hospital governance, management and operations, optimizing the use of social insurance, reorienting human resource management and compensation, and shaping service delivery to create a more effective and balanced tiered system through strengthened primary care and greater integration between levels of the healthcare network. This PforR draws on the recommendations of the joint study, and builds on the government's policy initiatives, in designing this program so as to promote inclusive and equitable development, a core element of a "harmonious society", as described in the GOC's 13th Five Year Plan.

1.2. Anhui and Fujian Provincial Context

2. **Fujian Province** is located in the southeast coast of the country, with the land area amounting to 124,000 square kilometers. In 2015, the population was 38.39 million, with natural growth being 6.19‰. The total forest coverage ranks the first in the nation. The per capita GDP ranks 8th in the nation. There are 9 municipalities in 1 comprehensive experimental area, including 85 counties (cities and districts).

3. In 2014, there are 27,913 health care facilities in Fujian, including 557 different scale of hospitals, 536 community health care centers or health care stations, 886 township health care facilities including 222 health care centers, and 664 health care stations, and 19,125 village health care stations. There are 164,781 beds in the province, averaging 4.33 beds per 1000 people. There were 273,669 health workers in the province. There are 65 Class III hospitals in the province, with at least one class 1 comprehensive hospital in each municipality, six Class III hospitals for 8 counties with population above 800,000, one Class II comprehensive hospital for 30 counties with population over 300,000 persons. Every township has one township level health care center and one health care station for each administrative village.

4. **Anhui Province** is located in the middle and lower reach of the Yangtze River, with the land area amounting to 139,400 square kilometers. In 2015, the population was 6143.6 million, with natural growth being 6.98%. The total GDP was CNY2200.6 billion, averaging CNY35,817 per capita. The urban per capita income was CNY26,936 and rural per capita income was CNY10,821. There are 16 municipalities in Anhui Province, including 61 counties (cities) and 44 county level districts.

5. In 2015, there are 24,853 health care facilities in Anhui, including 1018 different scale of hospitals, and 22,030 local community health care centers, and 1721 public health agencies, which forms the comprehensive health service network covering the whole province. There are 267,405 beds in the province, averaging 4.35 beds per 1000 people. There were 377,387 health workers in the province, including 280,768 health technicians. The average doctors and nurses per 1000 people was 1.75 and 1.94 respectively.

6. In both provinces, in spite of recent increase of investments on health sector, about one third of counties still have room for further improvement in order to ensure all counties to meet facility standards. In order to ensure that tiered health service could be fully implemented and as many as 90% of doctor visits could be made within the counties, the basic capacity of county level health care facility needs to be improved. Such improvements range from adding various equipment and functional rooms in existing HCFs, which do not require any land acquisition, to building or expanding existing county level hospitals and township healthcare centers, which will involve certain amount of land acquisition.

1.3. Purpose and Approach of Environmental and Social System Assessment

7. The purpose of the Environmental and Social Systems Assessment (ESSA) is to: (i) review the environmental and social management rules and procedures and institutional responsibilities that are being used by the government for the implementation of the PforR; (ii) assess the implementing agencies' institutional capacity and performance to date to manage potential adverse environmental and social issues under the PforR; and (iii) recommend specific actions for improving the capacity of implementing agencies in regard to effective management of environmental, health and safety and social issues during implementation.

8. The ESSA is a World Bank document requirement for PforR investment operations. It is prepared by Bank staff with consultant support as necessary through a combination of reviews of existing program materials and available technical literature, interviews with staff or representatives of government, Central PMO, health care facilities (HCF) at various levels and medical waste disposal centers, and consultations with key stakeholders and experts. The findings, conclusions, and opinions expressed in the ESSA document are those of the World Bank. The draft ESSA report was shared with counterparts prior to the ESSA consultation meetings held in both provinces in February, 2017. Comments received from the public consultations were incorporated into the final ESSA report as appropriate.

1.4. Methodology of Environmental and Social System Assessment

9. The preparation of the ESSA involved an assessment of the Chinese system for EHS and social management; a review of the effectiveness of the system in addressing the EHS and social issues associated with the PforR, and an evaluation of the institutional capacity of implementation agency. The methodology involved: (i) identification of the potential impacts from the activities to be supported by the PforR; (ii) a desk review of the laws, regulations, requirements, and guidelines on the EHS and social management to prevent or mitigate the identified aspects; (iii) meetings and interviews with key stakeholders ranging from implementing agencies, local environment protection and land resources bureaus, representatives of HCFs, to government officials and individuals; and (iv) visits to a number of HCFs at various levels and medical waste disposal centers in the two provinces. The visited HCFs include municipal and county level hospitals and township healthcare centers, as well as village healthcare stations. Some of those HCFs have recently completed land acquisition and resettlement. Observation and discussions during these visits provided a greater understanding of the potential environment and social impacts associated with these types of activities and capacity and procedure of government departments in dealing such impacts, including relevant measures currently adopted in accordance with relevant laws and regulations.

1.5. Borrower's Past Experience relevant in the PforR

10. The activities to be supported under this PforR cover Fujian and Anhui Provinces. Since 1983, a total of 11 health projects were supported by the World Bank in China. The National Health and Family Planning Commission (NHFPC) were involved in all the 11 projects and has gained rich experiences and cultivated strong capacity in the preparation and implementation of World Bank financed operations, including investment finance lending and technical assistance. The two provinces were involved in past World Bank financed health projects in China and gained relevant experiences. The NHFPC and the two provinces worked with the Bank closely during the preparation of the PforR. Continuous capacity building and implementation support will be provided to NHFPC and the two provinces during implementation of the PforR.

2. Program Description

2.1. Program Contents

11. The objective of the proposed China Health Reform Program for Results or PforR (henceforth referred to as the "PforR") is to improve the quality of healthcare services and the efficiency of the healthcare delivery systems in Anhui and Fujian provinces. The objectives will be achieved by supporting key areas of the health reform Masterplans in both provinces - namely those focused on public hospital reform, the implementation of a People Centered Integrated Care (PCIC) based service delivery system with strengthened primary care, and addressing the cross-cutting dimensions of the policy, institutional and financial environment, as well as program stewardship and institutional capacities, for the health reform - in both urban and rural areas across the two provinces. Eight Disbursement Linked Indicators (DLIs), along with the monitoring indicators, will focus on measurable and achievable improvements in the efficiency and quality of health care services (PforR outcomes) supported by the PforR in the two provinces. These DLIs are expected to translate ultimately into better health outcomes, an improved quality of life for patients, reduced out-of-pocket expenditures, and improved patient satisfaction, with the services being delivered at all levels of the health care systems.

12. The Government program is elucidated in the Provincial Health Reform Masterplans. Adhering closely to the national reform template, Anhui and Fujian provinces have laid out coordinated health reforms for the 2016-2020 13th Five Year Plan period in their respective health sector reform Masterplans. The PforR will support over a five-year period (2017-2021) a subset of the Anhui and Fujian Governments' health reform Masterplans across the two provinces in both urban and rural areas.

13. The PforR is appropriate because: (i) it is anchored firmly in the government's own health reform agenda and support government's own implementation program directly; (ii) it focuses on results, rather than on inputs, which allows the flexibility to the local reform implementers to explore the reform pathways needed for achieving the desired results; (iii) it enhances government's existing program management and implementation systems and capacity by reinforcing and strengthening these systems; and (iv) it facilitates the scaling up of successful local reforms pilots by incentivizing their geographical expansion in a systematic and step-wise manner.

2.1.1. National Health Reform Agenda

14. While China has made impressive gains on improving overall health outcomes, as well as in health systems reform - in particular in demand side financing, with the majority of the population covered by one of three health insurance programs - issues persist in the health sector, while new challenges are emerging. The population of China is aging at an unprecedented rate given improvements in life expectancy and the consequences of the One Child policy. According to the World Population Prospects, by 2030, the proportion of senior citizens above 65 will increase by about one fourth, and by 2050, the aged will account for about a quarter of the overall population. At the same time, non-communicable diseases (NCDs), especially hypertension and diabetes, have become a heavy burden to the Chinese health system. NCDs are already China's number one health threat, accounting for

over 80 percent of the 10.3 million premature deaths annually, and 77 percent of Disability Adjusted Life Years (DALYs) lost[2] in 2010. Moreover, more than 50 percent of NCD burden falls on the economically active population (ages 15-64), which may adversely affect the labor supply and compromise the quality of human capital. Risky behaviors, such as smoking, poor diets, sedentary lifestyles, and alcohol consumption, as well as environmental factors such as air pollution, are powerful forces behind the emergence of these chronic illnesses in China.

15. The progress on the reform of the supply side service delivery system has also been comparatively slower than the demand side financing, thus limiting the impact of the reform. China's current health delivery system is hospital-centric, fragmented and volume driven. Service delivery has a strong treatment bias, with an inadequate emphasis on population health outcomes. At the same time, human resource shortages and poor capacity at the grassroots has weakened the delivery of primary healthcare services. Service at primary care level is perceived by citizens as low quality, and people bypass the lower level facilities to seek treatment in hospitals late and at a high cost. As a consequence, utilization of hospital services has expanded rapidly from 4.7 percent in 2003 to 14.1 percent in 2013. Between 2002 and 2013, the number of tertiary and secondary hospitals increased by 82 and 29 percent, respectively, while there was a slight decline in the number of primary care providers. Perverse incentives have played a role in the rapid expansion of hospitals. Health insurance historically did not cover outpatient care, and hospitals were rewarded for production of services through a fee-for-service financing system. Service providers were incentivized to produce more, often unnecessary services, driving up investment and recurrent cost, and sometimes endangering human life. China now has more hospital beds per capita than the USA, Canada or the UK, and hospital services account for 54 percent of China's total health expenditure compared to less than 10 percent for primary care. Average lengths of hospital stays, a key driver of costs, is high in China relative to OECD countries (9.8 days compared to 7.3 days).

16. As a result, the cost of healthcare is growing rapidly, and the financial burden on patients remains high, raising affordability concerns for government health spending, as well as for households. Over the last two decades, total spending on health increased fourteen-fold from about 220 billion yuan to 3,170 billion yuan in real terms (CNHDRC, 2014). As China continues to grow, health spending will almost inevitably increase; however, the rate at which health expenditure increases can be controlled significantly through prudent choices on the organization and production of health services, and the efficient use of resources. The recently concluded Joint Flagship Health Sector Study, "*Deepening Health Reform in China Building High Quality and Value-Based Service Delivery*" suggests that a high cost path will result in two or three times the per capita spending than the low cost path, and will not lead to better outcomes. The quality of service is also not meeting citizens' expectations, and dissatisfaction with health services is on the rise. Finally, insufficient coordination among institutional actors is a major impediment to innovation and sustained reform implementation in the health sector.

17. Recognizing the health sector challenges noted above, China embarked on a so called 'deep water' phase of its national health reform in 2014. On October 29, 2015, the 18th

[2] IHME 2010, WHO 2014.

Session of the Central Committee of the Fifth Plenary Session of the Chinese Communist Party (CPC) endorsed a national strategy known as "Healthy China." Guided by this strategy, the GoC has articulated a comprehensive national health reform agenda, including a Healthy China 2030 Plan, a Health Sector Development Plan and the 13th Five Year Health Reform Plan, which lay out sectoral reform agendas for the period 2016-2020. To operationalize the reform plans, the central government has issued various policy directives to define the national priorities and directions for health sector reform,[3] with an extensive package of measures covering all relevant facets of the health sector. Overall, the national reform initiatives are organized into 10 areas, namely: (i) Building an effective tiered service delivery system; (ii) Deepening public hospital reform based on the successful pilot in Sanming prefecture and select other reform pilots; (iii) Enhancing universal health insurance; (iv) Strengthening drug procurement and supply systems; (v) Enhancing the regulatory framework for the sector; (vi) Building an effective health information system; (vii) Strengthening human resources for health (HRH); (viii) Enhancing the "essential public health equalization" program, which subsidizes public health services; (ix) Promoting the health care industry (private sector); and (x) Lastly, and perhaps most importantly, strengthening the leadership and stewardship for the implementation of the comprehensive reforms.

18. The responsibility for translating the national/provincial vision into action plans rests with the provinces. The GoC's 13th Five Year Health Reform Plan provides an overall vision for the sector, but does not prescribe the specific details of the provincial health reform plans, nor does it specify a budgetary/financing plan to support the reform. But the central government does subsidize the implementation of key reform elements through central budgetary transfers to provinces, e.g., for the essential public health package, social health insurance, standardized GP and resident training, and public hospital reform. Based on the central policy vision, and leveraging the central and provincial resources, the provinces are tasked with putting in place plans and budgets to implement the health reforms. The specific resources targeted by the national and provincial governments to implementing this vision serve to further orient and leverage the bulk of health expenditures prioritized at the sub-provincial level, including municipal and county governments. Policy and oversight activities financed at the provincial level, along with various specific transfers to the sub-provincial level are therefore integral to realizing the action plans.

2.1.2. Anhui and Fujian Health Reform Masterplans

19. Adhering closely to the national reform template, Anhui and Fujian provinces have laid out coordinated health reforms for the 2016-2020 13th Five Year Plan period in their respective health sector reform Masterplans. These Masterplans focus on the respective provincial contexts, while adhering to the national directives. In both the provincial Masterplans, the 10 national level reform areas have been consolidated into five reform priorities, namely: (i) comprehensive public hospital reform; (ii) building an effective tiered care health system; (iii) addressing the enabling environment, which includes cross-cutting areas applicable to both hospitals and tiered care; (iv) enhancing the

[3] State Council Notification on 13th Five-Year Plan for Deepening Health System Reform (2016) No.78

regulatory framework for the sector; and (v) promoting the private health industry. The Bank proposes to support the first three reform priorities of the provincial Masterplans.

20. The health systems in the two provinces include ongoing programs and proposed health reform interventions financed from various sources. Revenues from various financing sources "cascade" down the different levels of government (national, provincial, district, commune, and ultimately frontline hospital or clinic), and include a range of general and specific/earmarked expenditure lines. For the case of health insurance schemes, financing from the government at various levels, from employers and citizens are pooled. A major intervention is therefore to consolidate the various insurance schemes, and reform provider payments, so as to better incentivize the achievement of the health reform goals. The central contributions to the health sector include direct budgetary transfers to the provinces, as well as contributions to the urban and rural health insurance programs. These include general and earmarked transfers, depending on the specific scheme and flow of funds. These transfers from the central and provincial level for the two provinces totaled an estimated RMB 35.1 billion (US$5.1 billion) in 2015. Overall health spending, including social insurance expenditures, by all levels of government, totaled RMB 83.94 billion (US$12.2 billion) in 2015 in Anhui and Fujian. An estimated 60 percent of these expenditures can be attributed to Anhui, while expenditures in Fujian make up the other 40 percent. Facilities serve as the main delivery points, financing flows from the various levels of government, coupled with their own revenues (including health insurance payments and Out-of-Pocket (OOP) payments), support the operations of the health care system.

21. Part of the central and provincial government financing for health is closely associated with the healthcare reform program outlined in the provincial health sector reform Masterplans. Given the strategic role played by the central, and particularly provincial, levels of government in steering and supporting province-wide health reforms, the PforR focuses on those contributions by the central and provincial level that serve to finance the healthcare reform initiatives. These include financing for policy reforms, capacity building, and some strategic infrastructure such as IT systems and facility. In 2015, baseline expenditures for the on-going health reform program, defined in this manner, amounted to US$828 million, which are projected to total over US$4 billion over the four-year implementation period of the PforR. As defined, the overall value of the PforR supported government health care reform program is thus well beyond the operation's financing contribution.

22. The government program interventions relevant to the PforR include:

A. Comprehensive policy reforms, including medical services pricing, health insurance and provider payment, health care providers' governance and management, service delivery, the drug logistics system, HRH, quality assurance, which will require resources to leverage and implement in an evidence based manner. These will entail the government mobilizing technical expertise to develop policy packages, technical guidelines and action plans, organize relevant training and workshops, and ensure effective implementation, monitoring and supervision of the PforR. Most of the policy reforms are currently being financed by the budget of government agencies, which have proven to be insufficient. Accordingly, the government plans to either increase its current budgetary allocations, or create a new budgetary line item to support the policy reform.

B. Strengthening service delivery capacity, with a focus on county/district level and below, including county level hospitals, rural township health centers, village clinics, urban community health centers and emergency care at county level and below. County level hospitals are considered as the rural health facilities and one of the key reform objectives is to keep the utilization of most of the services (90 percent of hospitalizations in the case of inpatient care) at the county level and below so as to reduce the overreliance on the urban tertiary hospitals. Therefore, strengthening the service capacity of county hospitals is the focus of government program. The latter includes upgrading, rehabilitation and/or new construction of healthcare facilities at the county level, township and village levels only. It also includes the procurement of appropriate, mobile and portable equipment, as well as the expansion of the telemedicine network, which the PforR will support.
C. Improving the quality and efficiency of service delivery by introducing PCIC based service models, fostering the integration of providers at all levels, supporting the design of appropriate clinical norms and standards for the delivery of high quality health services, together with effective implementation of these standards; as well as changing the financial and governance incentives that providers face through reforming provider payment of health insurance and government financing to the providers.
D. Establishing effective health information platforms according to the national government's overall plan with the focus on expanding telemedicine network to support integrated care; establishing population health portal and disease management system to support NCD management; strengthening quality assurance and monitoring system by health administration and health insurance; and
E. Enhancing human resources through intensified training programs and upgrading/new construction of training centers and medical professional training schools, such as assistant physician training centers.

2.1.3. China Health Reform PforR (the "Program")

23. As noted, the PforR will support over a five-year period (2017-2021), a subset of the Anhui and Fujian Governments' health reform Masterplans across the two provinces in both urban and rural areas. The provincial governments' Masterplans cover a timespan from 2016 to 2020. The PforR, which is expected to become effective in August 2017, will support the reform implementation across the years 2017 to 2020, and will focus on knowledge generation, the dissemination of lessons learned, and evaluation in 2021.

24. The proposed PforR includes three result areas – public hospital reform, PCIC, and cross-cutting systems – that are derived from the first three priority areas of the provincial Masterplans, with associated disbursement-linked indicators (DLIs). The guiding principles for choosing these areas are that they address major challenges facing the health sector in the two provinces; are part of or linked to a comprehensive package of reforms aimed at improved efficiency and quality of health service delivery; build on the World Bank's past engagement and ongoing sector analytic work; and provide "value added" in terms of interventions that are innovative, scalable or expand upon previously piloted initiatives. The separation of hospitals and PCIC into two Result Areas is somewhat synthetic, given that hospitals and PCIC represent a continuum and both are integral to health service delivery. The government, however, has expressed a strong preference for separating out these two levels (as underscored in the national reform strategy and in the provincial

Masterplans), in order to highlight the experience of, and the specific interventions that characterize, the Sanming public hospital reform, and Anhui's IDS pilot. It should be emphasized that the PforR will ensure that issues relevant to governance, financing, IT system and service delivery in these two Result Areas are addressed in a coordinated manner, thereby leveraging fully the inter-connectedness of the health system and maximizing the impact of the proposed health reforms.

25. The PforR will not support the proposed national level enhancement of the health regulatory framework (Priority Area 4 in the Masterplans), which does not have a direct bearing on the delivery of hospital and integrated healthcare services. Also, the PforR will not focus on the promotion of the private health industry (Priority Area 5), since the underpinnings and the architecture for effective public private collaboration in China are still being worked out. Furthermore, neither area is currently being provided budgetary support by the government. As noted, non-inclusion of these two priority areas is not anticipated to have a material bearing on the results of the proposed PforR.

26. The expenditure boundaries with respect to the Masterplans are defined as core expenditures by the Anhui & Fujian Provincial Health and Family Planning Commissions (APHFPC/FPHFPC) for capacity building and reform management, as well as key capital outlays for physical and IT infrastructure. The PforR will include only those expenditures traced to the central and provincial level that finance the policy reforms and strengthen the health delivery systems. Thus, health insurance contributions are not included in the PforR expenditure framework, since – while they are critical for incentivizing provider behavior - they do not finance the health reforms per se. The management expenditures on health insurance schemes, however, are included since these expenditures finance the policy reforms associated with provider payments through the health insurance schemes. Drug procurement expenditures are not included, although the compensation paid by the government to hospitals for the revenues foregone due to the implementation of the zero markup policy is included. The government is also planning to finance the upgrading, rehabilitation and/or new construction of healthcare facilities at the county level, township and village levels.

27. The total IBRD loan for the PforR is US$600 million, which is 15 percent of total estimated government health reform expenditure plan. Of the US$600 million, US$593.5 million will be disbursed against the DLIs under the responsibility of the two provinces, and US$5 million will be disbursed against a DLI under the responsibility of the National Health and Family Planning Commission (NHFPC).

28. In implementing the PforR, a "scaling-up" approach will be pursued. China has a good track record of implementing innovative reform pilots at county or prefecture level. The central government and the two provinces have now committed to scaling-up the successful pilots. The proposed operation will therefore leverage the lessons learned from Sanming and Anhui reform pilots, as well as from international experience - including on PCIC model, the reform implementation pathways, the sequencing of actions, and the institutional and financing milieu – in incentivizing the government's plan to scale-up these successful piloted initiatives across the two provinces. In support of the central government's determination to scale-up province-wide the successful pilots in Anhui and Fujian, the PforR will finance the results achieved under the three successful pilots (i.e. the Sanming hospital reform, Fujian's integration of the management of the health insurance

programs, and Anhui's IDS initiative) upfront in Anhui through DLI 1.1 (US$15 million) and in Fujian through DLI 1.2 (US$40 million), upon Program effectiveness.

3. Potential Environmental and Social Effects

3.1. Environmental and Social Screening

29. As required by the Bank PforR Policy, and Directive, the Bank team in collaboration with the two provinces carried out screening exercise for the PforR to identify and exclude potential investment areas or activities that may have high risk environmental and social issues, while ensuring investment activities can provide measurable results. The purpose of the screening was to: (i) identify program activities likely to have significant adverse impacts on the environment and/or affected people (those activities are not eligible for the PforR and should not be included under the Program); and (ii) determine the priority areas for further attention during the environmental and social system assessment.

3.2. Potential Environmental Benefits and Risks

3.2.1. Potential Environmental Benefits

30. The PforR is expected to bring about positive environmental and health benefits in terms of providing improved health services to the public and communities, particularly in rural poor areas. Meanwhile, along with the improvement and specialization of health services, it is expected that standardized hospital management practices for medical waste, occupational safety and health, and that the collection and transportation of medical wastes in rural areas will be improved.

3.2.2. Environmental Effects and Risks

31. The activities to be supported under the PforR are not expected to take place in, encroach or degrade, sensitive habitats, be located in sensitive areas of high biodiversity value, or affect areas protected for physical cultural resources. Nonetheless, some of the activities supported under the PforR have potential negative impacts and risks associated with construction of the physical structures, the operation of existing or new healthcare facilities.

A. Construction Impacts

32. Environmental impacts, including dust, noise, non-hazardous solid waste, wastewater, and social disturbance such as traffic safety and congestion, and construction safety concerns may occur during construction of the limited physical works supported under the PforR. These impacts are envisaged to be moderate, temporary or site-specific and can be mitigated with readily available measures, see Table 3-1.

Table 3-1 Potential Environment Effects and Risks Associated with Construction Activities

Environmental Issues	Activities under the PforR	Level of Concern
Dust, noise, general solid waste, wastewater	Construction of physical works within HCF will cause dust, noise, wastewater and general solid waste. Given the sensitive location of the works, the visitor	Minimal level of concern: Such effects are site-specific and can be effectively mitigated by measures such as water spray, dust-net, site-fencing, vehicle cleaning; use of low-noise equipment and

Environmental Issues	Activities under the PforR	Level of Concern
	and patients, particularly the inpatients, may be exposed to noise and dust during construction of the structures within the HCF.	prohibition of construction during nighttime, construction site settling tanks and effluent discharge municipal sewers, and collection and transportation of general solid waste in a timely manner. According to the domestic regulations, such construction of physical works will require the preparation of EA (in the form of EIA report, or EIA form). The issues will be assessed in the EA document and reviewed by local EPB. The implementation of the EA by contractors, supervised by the project owner and by local EPBs will effectively alleviate the concern.
Social disturbance, including influx of workers, traffic safety and congestion, construction safety	At county seats, location of Healthcare facilities may be located in densely populated urban area, and the construction of the structures/buildings will be within the boundary of the hospitals, the safety of the patients, visitors and HCF staff will be affected by the transportation fleet and the construction activities. For example, falling materials from high places, etc. and the areas inside and outside the HCF may become congested. Construction activities and workers may also cause social disturbance to local communities and customs.	Minor level of concern: Such effects are site-specific, and can be effectively mitigated through existing EIA preparation, review and implementation process. Given the limited scale of construction activities, no significant flux of labor is anticipated during construction. In recent years, social risk and stability assessment is often required for construction of relatively large infrastructure, which addresses the social disturbance and concern among other social issues.

B. Operational Impacts and Risks

33. The activities under the PforR include the operation of new and existing health facilities and procurement of medical equipment. These activities result on operational effects and risks including: (i) medical solid waste management within healthcare facilities; (ii) transport and disposal of medical solid wastes; (iii) radiation leakage, handling of radiation contaminated wastes; (iv) decommissioning of medical radiation equipment; (v) medical wastewater; and (vi) air emissions in healthcare facilities. If not well managed, these activities will threat the environment, public health, occupational and community.

34. Through field visits and discussions with authorities and hospitals, it is noted that in both provinces the waste streams (waste, wastewater and air emissions) in hospitals and radiation impacts are managed and regulated following national and local regulations. For example, each hospital has a medical wastewater treatment facility under operation. There

are numerous regulations, and specific hospital EIA and internal management system to address the operational impacts and risks.

35. Table 3-2 provides a summary of key environmental effects associated with HCF operation in the two provinces.

Table 3-2: Potential Environment Effects and Risks Associated with HCF Operation

Environmental Issues	Activities under PforR	Level of Concern
Medical solid waste within Healthcare facilities	It is expected that visitors to the county level hospitals will increase along with the health reform's direction that county level hospital will expand its service scope and levels. Hence it is expected that the amount of complexities of medical solid waste will increase in county level hospitals. For the HCF below county levels, it is expected the composition of the medical solid waste will not change substantially, while the quantity of will increase. For the HCF at provincial and municipal levels, the quantity and composition of the medical solid waste to be generated are expected to be slightly changed.	Moderate level of concern: In healthcare facilities, medical waste is collected and packaged by medical workers, and temporarily stored at designated places. A special unit (mostly the infectious prevention unit) is responsible for providing technical guidance and day-to-day supervision. The risk management can be compromised if constrained by low awareness or technical knowledge, inadequate equipment or storage capacity, or lack of supervision. Such effect and risks can be mitigated through the application and strengthening of existing in-hospital waste management system, including medical waste categorization system, hospital waste management plan, ad-hoc training program, regular review and upgrade (as necessary) of the capacity of temporary medical waste storage chamber within hospitals. Local health bureau and local sanitation supervision stations should be engaged.
Medical Wastewater	Similar to above medical solid waste issue, the amount and complexities of medical wastewater at county level hospitals are expected to increase.	Moderate level of concern: At county level hospital and township level hospitals, treatment efficiency and monitoring of wastewater treatment facilities may be compromised due to increased or irregular wastewater loading. Periodical regular check, operational improvement and upgrading (as necessary) of the hospital wastewater treatment facility should be carried out to ensure the treated effluent will meet

Environmental Issues	Activities under PforR	Level of Concern
		applicable standards. The flow and composition of the medical wastewater should be monitored regularly based on the reformed capacity and service scope of the hospitals to ensure that the medical wastewater be collected and treated on site to the effluent quality standard applicable.
Radiation on communities	The procurement of new and advanced medical imaging or radiotherapy equipment. If not well managed or protected, can lead to radiation exposure and/or radiation contaminated materials (including liquids, feces, paper, medical gloves), resulting on concerns for public and community health. In particular, if the Healthcare facilities are located in core urban areas.	Moderate level of concern: Documentation, procedures and capacity are in place in terms of managing the radiation impacts and risks. For equipment, the licensing, safe use, work-site detection, maintenance, emergency response and proper decommissioning are specifically required and regulated to avoid potential radiation leakage. For radiation contaminated wastes, specific requirements on collection, separation, storage, packaging, transport, and final disposal are in place.
Air emissions:	Separate boiler from district heating system are operated to provide heating for inpatient building and hot water for laundry and bathing, as well as steam for sterilization. The boilers will use fossil fuel that emitting air emissions and polluting air if not well managed.	Minor level of concern: Air emissions can be mitigated effectively by low-NOx burner, Flue gas desulfurization (FGD) technology and dust removal process to meet Chinese standards. Flue gas emission control technologies are state of the art and widely available commercially in China.

C. Induced Impacts and Risks

36. The assessment also covered potential induced, cumulative or transboundary impacts. The key issue identified is the induced impacts and risks associated with transportation and disposal of medical solid waste. Consistent practices have observed in both provinces that one medical waste incineration plant (disposal center) is in place to serve a prefecture. Country-wide the medical waste disposal centers have been built following the SARS crisis in 2003 and used modern technologies for incineration and air pollution control facilities. A summary of the 2003 SARS crisis and how it has incentivized the development of medical waste management system is included in Annex 5.

37. Through field visits, desktop review and consultations, it is noted that these facilities are regulated by stringent emission standards, online monitoring and local EPBs. The practices in Fujian and Anhui, the disposal and transportation of the medical solid waste collected from the Healthcare facilities in each municipality is the responsibility one

certified company. The potential effects and risks associated with medical waste transportation and disposal are summarized in Table 3-3.

Table 3-3: Potential Induced Environment Effects and Risks

Environmental Issues	Activities under the PforR	Level of Concern
Transportation and Disposal of Medical Solid Waste	The operation of the HCF will generate medical solid waste requiring proper transportation and disposal. The disposal centers operation may produce air emissions bottom slag and fly ashes, wastewater during operation. The transportation of the medical solid waste may cause secondary pollution.	Moderate level of concern: The collection, transport and disposal of medical waste are carried out by specialized companies in both provinces. In each prefecture, a medical disposal facility (incinerator) is in place to serve the prefecture and the disposal capacity is considered adequate. However, considering the activities under the PforR will expand lower the provision level healthcare facilities in townships, villages and some of which are located in remote rural areas, inadequate collection and subsequent improper disposal of medical wastes are perceived as an actual risk. From induced impact perspective, if not well managed, the transportation of the medical solid waste may cause secondary pollution or contamination. Also inadequate operation of disposal centers may produce air emissions bottom slag and fly ashes. These issues can be addressed by the verification/manifest system for the transportation fleets that are certified according to the domestic requirements, and the disposal facilities are designed and operated in industrial good practice. The equipment or technology for disposal of the medical solid waste designed to the international standard is easily available in market. The total amount and composition of the medical solid waste in each city are envisaged to remain largely unchanged, so the designed capacity of the disposal facilities is capable of accommodating the medical solid waste collected. If not well managed, the operational performance of the transportation and medical waste incinerators may be compromised by inadequate operational capacity and inadequate maintenance.

3.2.3. Occupational Health and Safety Effects

38. The potential occupational health and safety impacts of activities under the PforR are largely associated with the medical solid waste and radioactive equipment, and fire prevention in operation stage, among others. Table 3-4 provides a summary of key occupational health and safety effects of activities supported under the PforR.

Table 3-4: Potential Health and Safety Effects for the Program

Health and Safety Issues	Activities under the PforR	Level of Concern
Exposure to Infections / Diseases	Health care providers and personnel may be exposed to general infections, blood-borne pathogens, and other potential infectious materials during care and treatment, as well as during collection, handling, treatment, and disposal of health care waste.	Moderate level of concern: Such effects are site-specific and moderate, and can be addressed by: (i) formulating an exposure control plan for blood-borne pathogens; (ii) providing staff members and visitors with information on infection control policies and procedures; and (iii) establishing standard precautions to treat all blood and other potentially infectious materials with appropriate precautions. Given that the activities under the PforR will enhance the service capacity of the health care facilities at the levels lower than municipal level, the quantity of the medical solid waste is expected to increase and its composition become complex respectively, the existing system within the health care facilities should be updated under the assistance of local health bureau/sanitation supervision station, which also are responsible for routine supervision of the performance of the system within the HCF.
Exposure to Hazardous Materials and Waste	HCF workers may be exposed to hazardous materials and wastes, including lutaraldehyde (toxic chemical used to sterilize heat sensitive medical equipment), ethylene oxide gas (a sterilant for medical equipment), formaldehyde, mercury (exposure from broken thermometers), chemotherapy and antineoplastic chemicals, solvents, and photographic chemicals, among others.	Moderate level of concern: Such effects are site-specific and moderate, and can be addressed by providing protective gear and training on the handling these hazardous materials and wastes for the scavenging unit and the HCF workers within the health care facilities. Given that only licensed contractors are allowed to handle the materials and wastes, and that test centers, imaging centers, and sterilized and supply centers are existing at the county level hospitals and only will be expanded in capacity, due diligence review by the local health bureau/sanitation

Health and Safety Issues	Activities under the PforR	Level of Concern
		supervision department which are responsible for routine check of the performance of the occupational health system within HCF will effectively address this concern.
Radiation	Occupational radiation exposure to equipment emitting X-rays and gamma rays (e.g. CT scanners), radiotherapy machines, and wastes contaminated by radiation.	Moderate level of concern: Such effects are site-specific and moderate, and can be addressed by carefully designed exposure control plan which include the monitoring of dose, regular physical examination of operation staff, and provision of protective gear/cloth and training to the operation staff, as well as operation procedure. As the activities supported under the PforR involve procurement of medical equipment and expanding imaging centers at county level hospitals, some radioactive equipment maybe new to the staff of the hospitals, the exposure control plan should be updated, and reviewed by the local sanitation stations. In addition, performance of the updated exposure control plan, under the routine examination of the local sanitation supervision stations, should be reported.
Fire Safety	The risk of fire in health care facilities is a concern due to the storage, handling, and presence of chemicals, pressurized gases, boards, plastics, and other flammable substrates.	Moderate level of concern: Such effects are site-specific and moderate. Good design of the structures in line with the technical specifications for fire prevention of China, and development and drilling of firefighting plan will effectively address this concern. Given that the HCF at or lower county level will be enhanced leading to increased visitors and increased storage/use of flammable materials, the risk of fire would be increased. The firefighting plan of the HCF should be updated.

3.3. Potential Social Benefits and Risks

3.3.1. Potential Social Benefits

39. The government's Healthy China 2030 plan, states that "focusing on rural and grass-roots level, the government aims to promote the equalization of basic public services, pursue the public interests of basic health services, gradually narrow the disparities in the use of basic health services and health status between urban and rural areas, regions, and various groups of people, and achieve universal health coverage"; in particular, "to improve the health of women, children, the elderly, the disabled, low-income groups and other vulnerable groups to achieve equal access to basic health care for all."

40. The proposed health reform program by implementing a series of public hospital reform measures and establishing an effective and accountable People Centered Integrated Care (PCIC) based service delivery system will improve the accessibility and quality of health service to both urban and rural residents in Anhui and Fujian Provinces and reduce the out-of-pocket cost for them, particularly for those vulnerable groups. Taking Sanming as an example, where some of public hospital reform measures had been implemented, following the reform, the city achieved a series of positive outcome benefitted to both urban and rural population in the city, which includes controlling overall growth of healthcare expenditure to manageable levels, tackling over-prescribing and profiteering in the drugs market, increasing salaries for medical staff, reducing out-of-pocket cost burden on the patient, aligning hospital performance management closer to quality care, and turning health fund deficits into surplus.

41. For many patients in Sanming, the main improvements were the raising reimbursement rates (especially for rural residents) and introduction of the new website which gave access to trustworthy information about prices and providers. Compared to national averages, Sanming's reimbursement rates for patients are now around 10 percent higher, and disparities between those in the urban and rural residents' schemes have closed. Average prescription costs for inpatients and outpatients have also fallen sharply, and are now the lowest of all cities in Fujian Province. The average cost per admission is now 35 percent lower than the provincial average. The fall in treatment costs and increase in reimbursement has had a direct impact on out-of-pocket spending data. Between 2011 and 2015, for both urban employees (with UEBMI) and urban and rural residents (with URBMI and NRCMS), the out of pocket expense for each inpatient treatment expenses had reduced significantly, from CNY1818 and CNY2914 in 2011 to CNY1615 and CNY1715 in 2015, reducing by 11% and 20% respectively. With improved financial capacity, financial support to those vulnerable group with serious illness also increased greatly and benefited persons increased from 55 persons in 2014 to 1214 persons in 2016.

42. The proposed activities towards establishing PCIC health service delivered system under the PforR will also lead to improvement of primary health care capacity in rural areas. Through financing more standard village clinics and expansion of township healthcare centers, and hiring more healthcare professionals, the accessibility and quality of healthcare for millions of urban and rural residents will be improved, particularly for those in remote rural villages. For example, in Changting County, Fujian Province where such reform had been implemented, the ratio of treatment within township had increased to over 90%, and the treatment within the county increased to over 80%.

43. The health reform activities proposed under the PforR should not result in any increase of insurance premium and change of the coverage of the insurance. Therefore, most of activities and measures under the proposed PforR aiming at further improving accessibility and quality of existing health care system in China will bring a great deal

social benefits to both rural and urban residents in two provinces in the form of better access to preventive health care, better quality of medical treatment, and lower out-of-pocket cost.

3.3.2. Potential Social Effects and Risks

44. Some potentially negative effects related to the introduction of reform measures may occur, especially in a transitional period if those are not analyzed holistically. The main social issues considered during the assessment, comprise of social risks, potential negative effects, and potential impacts of the PforR, related to: (i) introduction of policy reforms; (ii) accessibility and equity; (iii) public participation; (iv) land acquisition and resettlement; (v) ethnic minorities.

45. Introduction of policy reforms: The hospital governance reform will delink the payment of bonus for the medical staff with the prescription of drugs and examination, which could affect their income. This might have a risk of demotivating doctors and other health workers to provide quality health services. On this matter, the reform will introduce performance based compensation systems for healthcare professionals. The findings of the post evaluation of the pilot in Sanming prefecture showed that the income for medical workers has more than doubled since the reform, which had led to tangible improvements to staff satisfaction and motivation.

46. Introduction of the case-based payment system will result in a change from the existing Fee-for-Service payment system. If the case fee rating cannot be determined properly, it may result in an increase in health service costs. On the other hand, it might cause the under provision of health services, which can be reduced and controlled by the new standardized clinical pathways at county level general public hospitals. Accessibility and equity: Inequity in health service coverage still exists, in spite of three different social insurance schemes established, covering 96% of the total population in urban and rural areas, namely urban employee (UEBMI), urban resident (URBMI), and rural resident (NCMS). There are substantial disparities across these schemes regarding funding source, benefit package, and financial protection, in particular between two resident schemes and urban employee scheme. For example, rural populations have more restricted benefit package than urban worker and less financial protection, mainly due to lower premium for URBMI and NCMS, despite the fact that the government provides significant subsidy, around 75%, to the premium for rural and urban resident.

47. The PforR aims to promote the integration of social health insurance schemes, in order to reduce gaps between urban and rural areas, between regions of different income levels, and between different groups of people in terms of the rates of medical service utilization, prenatal care, and catastrophic health expenditure. In addition, there are two government supplement programs focusing on improving the accessibility and equity of health services for the poor and to reduce the burden of disease on households, which include (i) Medical Aid Scheme (MAS); and (ii) Catastrophic Medical Insurance (CMI). Nevertheless, in some poor areas, the lack of quality health service provision in the neighborhood and local communities' habits may negatively affect accessibility and equity.

48. Public participation: During the implementation of the PforR some issues related to lack of evidence of public participation and social accountability of the health care reform

may arise, as well as the inadequate participation of users in monitoring the quality, satisfaction and utilization of the delivery of health services.

49. As per the joint flagship health sector study, *Deepening Health Reform in China Building High Quality and Value-Based Service Delivery*, the key elements of patient engagement almost invariably rely on some combination of building health literacy, strengthening self-management, and improving shared decision-making. For example, shared decision-making cannot take place in the absence of a basic level of health literacy among patients, which in turn is linked to and cultivates a certain confidence in the patient's own ability to manage his or her health.

50. Land acquisition and resettlement: For those healthcare facilities to be built, expanded, or rebuilt completely, a certain amount of land acquisition is expected. The construction and upgrading of health care facilities might include county level hospitals and township level health care centers. Based on visits to a number of health care facilities in Fujian and Anhui Provinces, the amount of land requirements should range from 5-15 mu for township health care centers to 20-200 mu land area for county level hospital (class II). For township level healthcare facilities, since the current land holding ranges from only 5 mu to 15 mu, certain amount of land acquisition might be required in order to reach national standards during upgrading and expansion. For village health stations, which consist of one story building with about 60 to 120 square meters, since most of them will be built on the village owned land areas, no new land acquisition is expected to be required.

51. In terms of location, most of these investment activities would be located in county towns or township centers. The new land requirement will involve permanent acquisition of rural lands from local village collectives, and some of these land areas might be contracted to individual farmers. Given the nature of different types of health care facilities to be covered under the PforR, ranging from county level hospitals to township level heath centers, the amount of permanent land acquisition is relatively small, and it is unlikely to be involved with large scale of house demolition and displacement. The overall impact of land acquisition appears to be limited in scale and moderate in degree.

52. Ethnic minorities: on potential social impact on ethnic minority groups in Anhui and Fujian Provinces, the proportion of ethnic minorities is very low in these two provinces, ranging from 0.66% in Anhui Province to 2.16% in Fujian Province. She and Hui nationalities account for about 90% of total minorities in the two provinces. These two nationalities share the same language and live and behave in ways virtually identical to their Han Chinese neighbors, and hence are usually not vulnerable to ethnicity-specific community hardship. Location of potential Healthcare facilities under the PforR will be mostly located in county towns and township centers, where ethnic minorities are scattered. Only village level clinics will be located in villages including some ethnic minority communities. Under Chinese legal framework on ethnic minorities, they will be closely consulted for such development. Past experience indicated most communities will welcome such development since they will bring easy access to health care to local communities. All village clinics should be built on village collectively owned land with little impacts on village individuals. Some ethnic minorities may be affected during HCF improvement. This adverse impact, however, is expected to be limited due to the type of project involved and relatively small areas required. The affected minority communities like other local communities will be consulted and obtained their support during EIA and land acquisition

process for planning investment projects. The local government agencies will review and approve relevant investment projects on behalf of local population and communities.

53. Thus, these social impacts and risks are considered moderate, and suitable to activities to be supported by the PforR according to the Bank's PforR Policy, and Directive.

4. Assessment of Environmental Management Systems

4.1. Legal and Regulatory Framework

54. At national level, more than 80 laws, 120 regulations and over 1,000 environmental quality and emission standards and technical guidelines have been enacted to address ambient environmental quality, pollution control, natural resource and ecological conservation. Cultural relics, safety and health issue are covered by a very comprehensive legal framework as well. At sub-national and local level, provinces and municipalities have issued a large number of regulations for environmental protection. It should be noted that local environmental and emission standards can only be more stringent than their national counterparts. A list of key environmental, health and safety related laws, regulations and technical guidelines is included in Annex 1 to this report.

55. This chapter discusses the legal and regulatory framework for environmental, safety and health protection relevant to the PforR, their implementation, institutional performance and capacity, and comparison with the World Bank PforR Policy, and Directive. It concludes that the country environmental management system is comprehensive and there is no substantial gap compared with the World Bank and international standards. However, in implementing the framework, concerted enforcement, institutional coordination and capacity building should be strengthened, particularly at the low administrative level (namely below county level) during the PforR implementation.

4.1.1. General Environmental Protection, Pollution Control and Medical Waste Management

A. General Environmental Protection and Pollution Control

56. **Environmental Protection Law- (EPL, issued 1979, amended 2014):** The EPL lays out general principles for environmental protection and describes key instruments for environmental management. It requires enterprises, public institutions and any other producers or business operators to prevent and reduce environmental pollution and ecological destruction and to bear the liability for the damage caused by them (Article 6). It also requires that development plans and construction projects with environmental impacts be subject to environmental impact assessment (Article 19). This statute divides environmental management functions between national and local environmental administrations with powers to enforce environmental legal requirements. In addition, the EPL requires that the State adopts regulatory instruments such as environmental protection target, accountability and performance evaluation system (Article 26), establish ecological protection compensation mechanisms (Article 31), implement the "Three Simultaneousness" system[4] (Article 41), implement the total emission control system for key pollutants (Article 44), and establish a pollution permit system (Article 45). The EPL includes stipulations on information disclosure and public participation (Chapter 5) and recognizes the right of citizens, legal persons and other organizations to report environmental pollution and ecological damage activities of polluters. The amended EPL

[4] Pollution control facilities must be designed, constructed and operated at the same time with the main project.

authorizes environmental departments to stop or shut down non-compliant producers and enterprises, and to enforce cumulative non-compliance penalties on a daily basis without top limit. It allows personal detention of violators (but not criminal charges). It also requires consideration of environmental impacts during the formulation of economic and technological policies by center, provincial and municipal governments.

57. The EPL establishes a number of key implementation systems as main instruments in China for environmental safeguards. These systems are supported under a large number of regulations, implementation rules, standards, and guidelines. The main systems include:

- Environmental Impact Assessment System: All construction projects and relevant development plans are subject to regulation of the EIA system. More is discussed below under the EIA Law.
- "Three Simultaneousness" system: Pollution control facilities must be designed, constructed and operated simultaneously within the main project. The implementation of "Three Simultaneousness" is enforced by relevant levels of environmental protection bureaus (EPBs), which review and approve the EIAs and carry out the verification inspection upon the completion of construction and commencement of operation.
- Total emission control system: The State adopts a total emission cap control system for key pollutants. The total emission quota is allocated to each province. Provinces will further allocate down to the enterprise level. All enterprises are required to meet both the emission standards (national and local) and the total emission control target. Areas failing to meet the total emission control targets are banned from approving new construction projects with additional emission of regulated pollutants.
- Pollution permit system: All entities are required to obtain a permit for pollution emission. The permit specifies the types of pollutants, ways of emission, total emission quota, and period of validity. Local EPBs regulate the permit system by reviewing and approving permits and supervising compliance.

58. **Environmental Impact Assessment Law (EIA Law, 2002**): This law is a subset of EPL. In October 2002, the former EIA Regulation was upgraded to a new national EIA Law, which entered into force in September 2003. The statute requires that all relevant parties, including experts and the general public to evaluate the likely impacts of development projects, programs, and plans on the environment. The EIA Law, together with a set of technical guidelines, provides a comprehensive EIA system that addresses the full range of environmental issues related to construction projects and plans.

59. Development projects are classified as either A (significant environmental impacts, requiring a full EIA), B (limited adverse environmental impacts in scope and severity, requiring a simplified EIA report known as EIA Form), or C (likely to have negligible adverse environmental impacts, requiring filling an EIA registration form).

60. As part of the EIA system, the Interim Measures for Public Consultation in EIA (SEPA, 2006) provides further detailed requirements and procedures of public consultation and information disclosure. In summary, these include:

- Two rounds of information disclosure: (1) Project owners shall issue public notice within 7 days of hiring EA institute, announcing the start of EIA preparation, project brief and key issues requiring public opinions; (2) Project owner shall carry out second round of information disclosure before submission of EIA report for approval, disclosing the key findings of EIA in terms of impacts and mitigation measures, as well as the ways to get simplified version of EIA report and provide feedbacks. The project owner is obliged to disclose the simplified version of the EIA report in public places, on the internet, or through other ways convenient to the public.
- Public consultation: Project owner or EA institute shall, after public announcement and disclosure of simplified EIA report, carry out public consultation through public survey, consultation with experts, public meetings, discussion workshops, or hearings to seek public opinions.

61. Public consultation is required for those projects requiring EIA Report (Category A). For projects subject to an EIA Form (Category B), consultation is not mandatory, except when special impact assessment for certain environmental elements is required as an annex. As per requirement of the Interim Measures, the MEP or local EPBs shall announce, through their website or other ways convenient for public accessibility, the receipt of EIA documents for review and disclose the reports as well as the decision results after review.

62. For the implementation of EIA system, the Regulation on Environmental Management of Construction Projects defines the EIA classification (Article 7), contents requirements (Article 8), and the levels of approval commensurate with the scale of potential impacts. It also establishes the requirement of qualification licensing system for entities practicing EIA.

63. In order to guide the determination of EIA categories, the Ministry of Environmental Protection (MEP) issued the Categorized Directory for Environmental Management of Construction Projects. The latest version (2015) provides detailed criteria for EIA category classification for 23 sectors (199 types of projects) with consideration of project type, scale, and sensitivity of locations. To support the technical quality of EIA, there is a set of 26 technical guidelines which articulate methodologies and technical details for assessment of various types of impacts and for key sectors of projects.

64. **Water Conservation and Erosion Control Law (2010)**: This law is to prevent water pollution and soil erosion from construction projects that may disturb land surface. As a prerequisite for approval, all construction projects that may cause soil erosion are required to prepare a water conservation and soil erosion control plan (as part of the overall EIA package). The plan is approved by the relevant water resources authority before the full EIA package is submitted to the environmental authority for approval.

65. **Air Pollution Control Law (2015):** As fundamental legislation for air pollution control, this law requires all air pollution emission entities to comply with national or local emission standards (Article 13). They must report to local environmental departments on their air pollution emission control facilities, pollutants types, emission concentration, and amounts of emissions (Article 12). All new construction, renovation and expansion are subject to air pollution impact assessment and must be approved and verified by relevant environmental departments (Article 11). It specifically defines provisions for air pollution from coal-burning (Chapter 3), automobile vehicle and ship (Chapter 4) and waste gas, dust

and odor (Chapter 5). It requires environmental authority (MEP) of the State Council to establish air pollution monitoring networks. It allows local governments to develop local environmental standards that are stricter than national standards (Article 7).

66. **Solid Waste Pollution Control Law (NPC, 2004**): This law requires the environmental authority to establish solid waste pollution monitoring systems. All projects that generate solid wastes are subject to environmental impact assessment (Article 13) and "Three Simultaneousness" requirements (Article 14). It includes general solid waste control provisions, as well as specific provisions for industrial solid waste, domestic garbage, and hazardous waste (Chapter 3). More specifically, it requires proper collection, use, and disposal of livestock waste and prohibits the open burning of agricultural waste in densely populated areas, along airports and transport corridors, and areas designated by local governments (Article 20).

67. **Forestry Law (NPC, 1998**): Construction projects should avoid or minimize the occupation of forest land. If unavoidable, approval from the forestry authority of the county (or higher) government must be obtained for land acquisition. The project must pay forest restoration fees as defined by the State Council. Forest restoration fees are to be used for forest re-plantation organized by relevant forestry authorities. The area of forest restoration cannot be smaller than the area lost by the land acquisition.

68. **Cultural Property Protection Law (2002):** (i) For various levels of protected cultural relics, governments at various levels define the necessary scope of protection. A buffering construction-control zone can be defined outside the scope of protection; (ii) No other construction projects are allowed within the scope of protection. Necessary construction within the scope must be approved by the corresponding level of government and the cultural relics authority at one higher level; (iii) Pollution facilities and activities that may affect the safety and environment of the protected relics are forbidden within the scope of protection and outer construction-control zone; (iv) Alternatives for construction projects shall be explored to avoid immovable cultural relics to the extent possible. If cultural relics are unavoidable, in-situ protection shall be pursued to the extent possible, and a protection plan must be approved by the relevant cultural relics authority. Ex-situ protection or dismantling must be approved by relevant level of governments. All necessary protection expenses shall be included in the budget of the construction project; (v) For large scale civil works, construction units shall contact the cultural relics authorities who will organize archeological surveys prior to construction. Expenses for archeological survey, exploration and excavation must be included in the construction budget; and (vi) Chance-find procedures: during construction projects or agricultural activities, any one or unit which uncovers cultural relics shall stop construction and protect the site, and immediately report to local cultural relics authorities for investigation. In case of important discoveries, the local cultural relics authority must report to authorities at higher levels.

69. **Flood Control Law (1997):** This law requires that all projects located in areas prone to floods to prepare a flood control assessment by a licensed institute. The report is to be approved by relevant water resources authorities, which is a prerequisite for approval of feasibility study.

70. **Regulation on Geological Hazard Prevention (2003**): This regulation requires that all projects located in areas prone to geological hazards are required to prepare a geological

hazard assessment report by a licensed institute. The report is to be approved by relevant land resource authorities, which is a prerequisite for approval of the feasibility study.

B. Medical Waste and Radiation Prevention

71. Specific to the health sector, a set of laws and regulations addressing environmental, health and safety issues in the medical sector have been enacted in China. Through field visits and discussions with authorities and hospitals in the two provinces, it is noted that the waste streams (e.g. solid waste, wastewater and air emissions) in hospitals, the medical waste collection, transport and disposal, and the radiation risks are managed and regulated following national and local regulations.

72. Over the years, backed by the regulations, strong political wills and continuous investments, a comprehensive medical waste storage, transport and disposal system have been established in China. Meanwhile, there is a good coverage of regulations governing medical wastewater, radiation prevention, occupational safety and health on Healthcare facilities. These regulations well cover the following aspects:1) explicitly designates the institutional responsibilities and roles; 2) establishes the procedure for review/clearance and supervision of these issues; and 3) provides technical guidance to control the quality of waste streams. Key points of these regulations are summarized in below.

73. **Regulations on the Management of Medical Waste (2003):** This regulation stipulates proper handling of medical waste or order to prevent spreading diseases and to protect the environment and human health. This regulation defines the nature of medical solid waste and the institutional responsibilities, including: 1) health bureau is responsible for infectious disease control in the cycle of medical waste management, 2) EPB is responsible for pollution monitoring and control in the cycle of medical waste management; and 3) the requirements and procedure for collection, internal transportation, temporary storage within Healthcare facilities, external transportation and disposal of the medical solid waste.

74. **Medical Waste Management Methods for Health Care Facilities (2003):** This method was developed based on the Regulations on the Management of Medical Waste and became effective in 2003. This regulation focuses on put emphasis on health bureau's duties and responsibilities in the medical solid waste management, and requirements for sorting, packing, labeling, segregation and storage of the MSW within HCF. It also covers the emergency response plan, training and occupational health protection.

75. **Radioactive Isotopes and Equipment Safety and Protection Regulation (2005):** the entities using the radioactive isotopes or equipment should return the retired radioactive isotopes and sources to the manufacturers or the importers when the radioactive equipment or isotopes is retired or decommissioned. In case that the radioactive isotopes or sources cannot be returned to the manufacturers or importers, they should be transferred to the certified entity for storage.

76. **Inventory for Categories of Medical Solid Waste:** The inventory provides the information on the categories identification for medical solid waste for sorting, separate collection and segregated storage, and final disposal.

77. **Technical Specifications for Concentrated Disposal of Medical Waste (HJ/ T177-2005):** This specification sets out the requirements for on operation and environmental compliance of medical waste disposal facilities.

78. **Technical Specifications for Centralized Incineration Facility Construction on Medical Waste (HJ/T 177-2005):** This specification provides guidance on site selection, design of the plant layout, process units and flue gas treatment for incineration facility for medical waste disposal.

79. **Technical requirements for Medical Solid Waste Transportation Vehicles (GB 19217):** This regulation stipulates technical specifications of vehicles dedicated to the transportation of medical wastes. For example, air-tight design should be adopted for the goods wagon which should be segregated from the driving cab.

80. **Law of Prevention and Control of Radioactive Contamination (2003)**: This law requires that the entity using radioactive equipment should prepare EA for approval by EPB at provincial level prior to requesting for license for operation of the equipment; radiation prevention facilities should be designed, constructed and operated simultaneously with the main structure; radioactive wastes be collected and stored separately from other wastes, and certified specialized companies be engaged to transport and dispose of the radioactive wastes.

81. **Technical Specifications for Radiation Shield in X-Ray and CT Chamber in Hospitals (GBZ/T180-2006):** This specification provides the method to estimate the shield value and the shield requirements for CT chamber.

82. **Technical Specifications for Hospital Sewage Treatment (HJ 2029-2013**): This specification provides guidance on the design of the process for medical wastewater treatment station within HCF.

83. In addition to the laws/regulations and technical specifications, there is a full set of environmental standards for each key concern associated with the medical wastes, radiation, and occupational health and safety. These standards are compulsory in the design, construction and operation of the environmental, occupational health and safety protection facilities associated with the HCF, and these standards are used as the benchmark for performance examination, including the acceptance examination, by the relevant government organizations.

4.1.2. Occupation Health and Safety

84. A comprehensive regulatory framework for occupational health and safety is in place in China. Since the two subjects are inter-related closely, many regulations embrace both elements. For the health care sector, the Regulations on the Management of Medical Waste stipulates that the president of HCF takes ultimate responsibility for occupational health and safety within the HCF and the infection control department of the HCF is responsible for technical issues on a daily basis. Relevant to the PforR, a set of occupational health and safety related regulations are summarized in below.

85. **Labor Law (2009):** The Law mandates health and safety requirements in work contracts. It requires that employers establish labor health and safety systems, comply with applicable national standards and guidelines, provide training for employees on occupational health and safety, prevent accidents and reduce occupational damages. It also requires employers to provide necessary personal protection equipment, working environments in compliance with national requirements, and periodic medical examination for employees in jobs with potential occupational health and safety risks. It requires a "Three Simultaneousness" system for work safety facilities in new construction, renovation and expansion projects -- safety facilities must be designed, constructed and put into operation simultaneously with the main project.

86. **Work Safety Law (2002):** This law is the umbrella law for work safety. It requires production operation entities to comply with relevant laws and regulations, establish safety operation rules and management systems, improve safety conditions and ensure safe operation of production. It specifies safety responsibilities of operation entities in terms of establishment of safety operation rules and specifications, setting of organization systems with clear responsibilities, staff qualifications and training, "Three Simultaneousness" of safety facilities, safety assessment, safety design and construction, safety signage, emergency response plan, and provision of PPEs. Enterprises, if involved in the use, manufacture, transportation, storage, or sales of hazardous materials, should establish special safety management systems and adopt effective measures. Associated operational staff should be examined and licensed. The Law clarifies the responsibility of safety supervision by relevant work safety authorities at various levels.

87. This law establishes a "Three Simultaneousness" system for work safety facilities, which is further elaborated in the Regulation on Supervision and Management of Three Simultaneousness for Safety Facility in Construction Projects (SAWS, 2010). The "Three Simultaneousness" system requires that work safety facility be designed, constructed and operated simultaneously with the main project.

88. The Work Safety Law and the Regulation also establishes a work safety assessment system, which requires work safety assessment to be conducted for various types of projects: Safety assessment is conducted by licensed entities and approved by relevant work safety authorities, which is a prerequisite for feasibility study approval.

89. Under the Work Safety Law, the Regulations on Safety Management in Construction Projects (State Council No. 393) defines general provisions on safety responsibility of the project sponsor, the construction surveyors, the design units, contractors, and supervision companies. The law also includes provisions on emergency rescue and investigation for accidents and legal liability for violating the regulations.

90. The Interim Regulations on Works Safety Risk Investigation (SAWS, 2007) clarifies that enterprises are responsible for work safety and mandates that enterprises establish work safety investigation and reporting systems. Under this regulation, all enterprises must conduct quarterly work safety risk investigations and report to the local Administration of Work Safety (AWSs).

91. The main regulator on work safety is the State Administration of Work Safety (SAWS) and its subordinate Administration of Work Safety at the provincial and municipal levels. The SAWS has developed over 80 administrative regulations and hundreds of work safety

standards and guidelines, which form a comprehensive occupational health and safety management system.

92. **Infectious Disease Prevention and treatment Law (2013):** This law requires that: (i) the HCF should provide regular training on the skill and knowledge for infectious disease prevention and control to its staff on regular basis; (ii) the HCF should strictly implement the specifications and management rules stipulated by the government to prevent the infectious diseases from spreading in HCF; (iii) HCF should designate a full-time staff or department to handle the issues related to infectious disease prevention and control within the HCF and preparation of the infectious disease report; (iv) HCF should designate a special department or staff to carry out the monitoring of infectious elements, safety protection, sterilization, segregation and, management of medical wastes; and (v) the government organizations dealing with prevention and control of disease should assign a staff to provide guidance, evaluation on the infectious disease prevention and control within the HCF, as well as to perform the epidemics investigation.

93. **Regulations on the Safety and Protection of Radioactive Isotopes and radiation Equipment (2005):** EPB takes the lead in the supervision and administration over the radioactive elements and radioactive devices, while the health bureau and public security department perform their duties. Categories of the radioactive risk need to be established. The HCF which uses the radioactive materials or devices should obtain the permit. The entities which conduct the business related to the production, sale, and use of the radioactive elements or devices should carry out the personal dose monitoring and occupational health examination, and establish the personal dose record and the occupational health monitoring and protection record for their staff, and provide training and knowledge awareness plan for their staff.

94. **Production Safety Law (2014):** The People First principle is applied throughout the law. Industrial development should give top emphasis on safety, make precautionary considerations to avoid accidents and comprehensive measures implemented through institutional structure of duties and responsibilities.

95. **Fire Protection Law (2009):** The public security department takes the charge in supervision and administration over the fire protection. The government, NGOs, enterprises and entities should enhance the education on fire protection to their staff and workers, while the public security department should supervise, guide and assist in the public awareness and education on fire protection. For the public gathering places, the owner or management should request the public security department for examination of the fire protection and safety before such places are put into operation. The leader of the entity has the top responsibility and the entity should establish its own system for fire protection and the emergency preparedness plan for evacuation and firefighting.

96. Under the coverage of occupational health and safety for HCF sector, a full set of specifications and standards have been issued to provide the technical guidance and benchmark for performing these laws and regulation in practice. These specifications and standards regarding the sterilization, monitoring, health protection, etc. are compulsory in design, construction and operation, and become the legal criteria for assessing the performance of management of occupational health and safety by the relevant organizations.

4.2. Implementation of Environmental Management System

97. To ensure the effective implementation and law enforcement under the environmental management system for health care sector, the duties and responsibilities of all of the relevant organizations are explicitly assigned and the procedure for investments review and approval is established among these organizations which require preparation of various documents, i.e. EIA, safety assessment report, health preliminary assessment report, etc. to address the issues relevant to the construction and operation of the Healthcare facilities. A summary of the implementation of environmental management system is presented in below.

4.2.1. Environmental Impact Assessment

98. MEP, provincial and local EPBs enforce the law through EIA institute certification, EA review and supervision.

Certification of EIA Institutes and Practitioners

99. The *Measures on the Management of Qualification Certificates for Construction Project Environmental Impact Assessment (EIA) issued by MEP* provide detailed requirements of qualifications and administration measures for the EIA institutes in carrying out EIA services. MEP conducts periodic review of the qualification and performance of all certified institutes and may suspend, downgrade or cancel the certificates accordingly.

100. MEP also regulates individuals performing EIA through an EIA engineer registration system. Individuals who provide EIA services must pass a professional exam to be eligible to register as an EIA engineer. The qualifications including professional ethics and technical track records are periodically reviewed by MEP.

EIA Preparation, Review and Approval

101. Preparation of EIA is the responsibility of project developer/owner, who will engage an independent certified EA institute to prepare the EIA document according to the applicable laws, regulations, policies, technical specifications for EIA and respective standards. The technical guideline for EA is the one of the technical basis for the preparation of EA, for the PforR it places emphasis on the management of medical waste streams which is also the focus of the review by EPBs. For the radiation risks, a stand-alone radiation impact assessment is required to be prepared by certified institute to undertaking the radiation impact assessment.

102. EIA review and approval is classified into different levels. The reviewing and approval body will be either the MEP or a local (provincial, municipal, or county) EPB, depending on thresholds of activity, level of approval for the project proposals, and environmental sensitivities.

103. For the PforR, the EIAs for the construction or renovation of small health structures within HCFs, or construction of a new hospital will be managed by district/county level EPBs, the EIAs for the procurement of radioactive equipment is subject to the approval of provincial EPB. Municipal EPBs will only review and approve projects with heavy pollution or cross-district/county borders. None of the PforR activities

is expected to require approval from the municipal EPB, except the procurement and use of the Class III radioactive isotopes.

104. Upon receipt of EIA documents, the district/county, or provincial EPBs will announce the receipt, commence the review process, and disclose the full EIA report to the public for comment and feedback. In contrast, the EIA Form and EIA Registration Form are not subject to public consultation and information disclosure. The EIA review process is implemented by an independent expert panels organized by the EPBs. These experts are selected from an expert pool established by EPB. Normally, at least three experts are selected for the review panel organized by city/county EPBs. Based on satisfactory results from the expert panel review, the provincial or district/county EPBs will issue the final approval documents.

Acceptance Examination

105. After the approval of EIA documents, the project owners are responsible for ensuring the implementation of measures defined in the EIAs. During the construction stage, mitigation measures are implemented by contractors and supervised by project owners and supervision engineers. Upon project completion, a mandatory environmental acceptance examination is to be conducted by the environmental authority that approved the EIA. A project can only formally start operation after passing the environmental acceptance examination (among other mandatory acceptance examinations for engineering quality, safety, and occupational health).

106. During construction, projects may receive on-site supervision from local EPBs (through their supervision and enforcement teams, normally known as Environmental Enforcement Squads).

The EIA process and the PforR

107. According to the Categorized Directory for Environmental Management of Construction Projects (MEP, 2015), the following activities to be supported under the PforR may have impacts that will trigger the EIA process (Table 4-1).

Table 4-1: EIA Categorization of activities to be supported by the PforR according to China's environmental regulatory system

Activities	Full EIA Report	EIA Form	EIA Registration
Construction or renovation of small structures, e.g. standard image center, sterilization and supply center,	√ (in case the structures are located in sensitive areas)	√ (if the structure is not located in sensitive areas)	√
Construction of community health care centers or stations,		√ (all)	
Construction of new hospitals	√ (all)		
Procurement and use of Class I ray devices	√		
Procurement and use of radioactive isotopes and Class II and III ray devices		√	

108. According to the classification of environmental authority[5], county/district EPBs are responsible for managing the EIA for the types of projects related to the civil works and equipment (except for ray equipment or radioactive isotopes) supported under the PforR. In addition, along with the ongoing reform of EIA authority and procedure in China, the EIA review and clearance may change. For example, in the past the EIA Registration Form had to be reviewed and approved by EPB; currently only the registration is required considering that such activities will have minimal environmental impacts. In addition, decentralization of EIA review and approval is taking place in order to streamline the process. The provincial EPB is responsible for managing the EIA for procurement and use of Class I and II radioactive isotopes and ray equipment, while the Class III radioactive isotopes being managed by municipal EPB.

4.2.2. Medical Waste Management of Health Projects

The guideline for medical waste management

109. To facilitate the implementation of the Regulation on Medical Waste Management (2003), the Ministry of Health issued the Measures to Implementing the Regulation on Medical Waste Management (Measures hereinafter) in 2003. This Measures stipulate the following five aspects:

(i) Requirements of the sorting, collection, labeling of medical wastes in each department within HCFs;
(ii) Requirements for system managing the medical wastes in each department and the temporary storage chamber, and the transportation from each department to the temporary storage chamber;
(iii) The requirements for transfer and registration of medical wastes within the HCF and between the disposal center;
(iv) Emergency mitigation measures for accidents of leakages and release of medical waste during the cycle of medical waste management;
(v) Protection for OHS for workers during the sorting, collection, transportation and temporary storage.

Internal system for medical waste management

110. The local health bureau is responsible for providing the relevant training on the above five aspects to the staff of the HCFs on regular basis. Often, the health bureau delegates a certified institute to conduct such training and the staff of the HCFs will be granted a certificate which indicates that the staff is eligible for dealing with the above five aspects.

111. The president of HCF is the person taking the ultimate responsibility for establishing and fulfilling the internal system for medical waste management and infection

[5] The classification of environmental authority is currently under the process of decentralization and the information in the ESSA just reflects the latest changes in the environmental authority during the preparation of the ESSA.

control and environmental protection within the HCF. There is usually a vice-president of the HCF responsible for the day-to-day management of medical waste.

112. Within the HCF, in each department a nurse or the chief nurse is designated to take charge of the sorting, collection, labeling, transportation, and record keeping of the medical wastes. This nurse or chief nurse will be provided with training by the staff who gets the certificate from the health bureau. A certified company is often contracted by the HCF to help clean the wards and toilets, and collection, sorting and transportation of medical wastes. The workers of the company are trained regularly by the company and the HCF.

113. Each HCF has an infection control department responsible for infection control, including the training and day-to-day examination of the management of medical wastes.

114. Each HCF has a general logistics department responsible for providing the protective gear and materials, such as plastic bags, disinfection liquid, gloves and sharps containers, to each department. The cost of the protective gear and materials are covered by each department.

4.2.3. Occupational health and safety, and radiation management

General occupational health and safety management

115. An occupational health and safety preliminary assessment report is required for any new construction, expansion and renovation of works or structures if they have the potential to cause occupational diseases.

116. The Inventory of Occupational Diseases provides the identification of occupational diseases for projects. During day-day- work at the HCF there is a risk, some occupational diseases would be caused in the operation of therapy and laboratory, e.g. chemical poisoning, skin disease, infectious diseases, burning, radiation damage.

117. The occupational health and safety preliminary assessment report is reviewed and approved by the health bureau at the level higher than the locality level. The health bureau will mobilize its experts from its expert pool to review the report and the adequacy of the protection facility/measures.

118. Upon the completion of the new construction, the owner/developer submits the request to the health bureau above county level for examination and acceptance of the occupational health and safety facilities and system, before the works or structures being approved to begin normal operation.

119. According to the relevant laws and regulations, it is mandatory that an internal system for occupational health and safety management be established and reviewed by the government authority. The system includes the procedures, institutional arrangement, reporting mechanism, materials preparation, and training plan, regarding the aspects of fire prevention, prevention and control of occupational diseases, e.g. infectious disease, radiation, chemical poisoning, skin disease, etc.

120. The presidents of the HCFs is designated with the top responsibility to organize, monitor and supervise the implementation of the internal system for occupational health and safety management. In addition, the budget to support the system is subject to the president of the HCFs.

Management of medical radiation risks

121. Radiation risk management receives special attention during day-to-day operation of healthcare facilities. There is clear procedure and system in managing medical radioactive equipment, radiopharmaceuticals and radiation sources. In general, HCFs are required to submit the request for radioactive diagnosis and treatment to the provincial EPB. Upon the receipt of the permit issued by provincial EPB, the HCFs will engage a certified third-part institute to prepare the EIA for the radioactive device, or the radioactive isotope or the radiopharmaceuticals to be procured and used by the HCFs. The EIA is conducted according to the technical guideline for radiation environmental protection management which places emphasis on the prediction of the impacts, the location selection, shielding, health and safety, mitigation measures, monitoring and training plan. Only after obtaining the approval of the EIA, the HCFs can start the design, construction and procurement.

122. For radioactive equipment, before installation a certified third-party company is hired to conduct the occupational health and safety preliminary assessment which needs to be approved. In addition, EPB carries out inspection and issues pilot operation permit. The HCF is also required to update the inventory of Radioactive Therapy Permit and Radiation Safety Permit in health bureau and EPB. After installation, within 3 months a certified third-party company needs to be hired to carry out assessment of the effectiveness of occupational health and safety. Meanwhile, EPB carries out environmental acceptance inspection. Upon receiving approvals on both, the HCF can start official operation of the equipment.

123. Before operation of the radioactive equipment or isotopes/therapy, the heath workers/staff in the HCFs should be trained by the health bureau. Once the training is completed and the health workers/staff passed the examination, the Certificate for Operating Staff in Radioactive Diagnosis is issued to the health worker or staff.

124. During the PforR, the worker/staff will be continuously trained on regular basis at least once a year. The training records will be kept in the HCFs for check by the health bureau. The physical examination is required to provide to the operating worker/staff, and the day-to-day portable devise for monitoring personal dose will be provided to the worker/staff, with the record kept in the HCFs permanently. The data will be submitted by the county level health bureau to the Ministry of Health through provincial and municipal level bureaus.

125. Annual monitoring on radioactive equipment and workshop have to be done and inspected by certified third-part company. The review report should be made ready for responsible authorities' annual inspection review.

126. When a radioactive equipment is to be decommissioned (when the radiation intensity is too low to meet therapy use), internal procedure in hospitals has to be fulfilled first. Radiation source will be tested by EPB first; then the hospital applies for approval for transport of radiation source from local public security bureau. Upon receiving approval, radiation source supplier (usually the producer) sends staff and vehicle to collect the

radiation source and provide documentation. Then the hospital updates the information at EPB and health bureau to complete the process. A decommissioned medical radioactive equipment, after removing the radiation source, usually poses no health risks.

4.2.4. Supervision of the Implementation of the Environmental, Health and Safety Measures

127. During normal operation period of healthcare facilities and the medical waste disposal enterprises, examination of the performance of the occupational health and safety system within enterprises is a key focus of local government and the HCF and the medical waste disposal enterprises themselves. Such examination include frequent examination conducted by the management and workers' union of the enterprises, and periodic examination by environmental, or health departments. The EPB at county level is responsible for conducting the supervision and examination for the environmental performance of the HCFs at or below the county level during the management of medical wastes and radiation protection; while the EPB at provincial or municipal level is responsible for the supervision and examination for the HCFs if their EA is approved by provincial or municipal EPB. The health bureau at county level is responsible for supervising the infection disease control throughout the cycle of medical waste management within the HCF at or below the county level, while the provincial or municipal health bureau often conduct supervision of the performance of the medical waste management system within the HCFs at or above municipal level. The production safety bureau is responsible for monitoring and supervising the occupational health management of industrial enterprises, e.g. disposal centers.

128. The health bureaus and the EPBs conduct the periodic on-site inspection and examination of the environmental, health and safety in the HCFs. The focus of the on-site examination by the health bureaus is on the protection of occupational health, certificate for operating staff, implementation of training and personal dose monitoring, implementation of radiation protection measures, performance of laws and regulations. The EPB focus its inspection on the radiation impact on the communities, and the monitoring of the radiation will be conducted at least once a year.

129. Generally, after the periodic examination, health bureau and EPB issue a report or a record on the assessment of the Environmental, Health and Safety performance of the HCFs/medical waste disposal center. If any faults in the health and safety management system of HCFs/medical waste disposal center are found or reported, EPBs or health bureau have the right to suspend or even stop the operation of the HCFs/medical waste disposal center before the faults are corrected by the enterprises and are accepted by the EPB or health bureau.

4.2.5. Summary of the Implementation of the Legal System for EHS at the program level

130. In terms of institutional arrangement, the laws and regulations relevant to the HCF sector clearly designate the responsibilities and duties to the following institutions as well as require the following documents/information during the design, construction and operation of the activities as given in Table 4-2 below. Such arrangement ensures that the key concerns on the EHS of the program be fully reviewed and effectively controlled by the government authorities.

Table 4-2: Institutional Responsibilities and Duties and Information Required

EHS Issues on HCF	Institutions	Documents/information required by the Laws/Regulations
• Medical Solid Waste and Medical Wastewater	• Provincial Health department is responsible for supervising and control of infectious disease during the whole cycle of medical waste management; • EPB is responsible for supervising and controlling environmental pollution during the whole cycle of medical waste management, including review and clearance of EA; • HCF is solely responsible for management of the EHS issues related to the medical wastes within the HCF. Normally the hospital infectious disease control department technically takes the charge of routine management of the issues.	• EA to be prepared by the HCFs which covers, as a key point, the assessment of the impacts of the medical waste and the corresponding mitigation measures, institutional arrangement, training plan and monitoring plan; • Contract signed between the HCF and the Medical solid waste disposal company, as a pre-condition for the approval of EA by EPB; • Environmental Facilities Examination and Acceptance Report, to be prepared by the HCF and submit to the EPB for approval before the operation of the HCF; • Record of site supervision, either by the health bureau or by the EPB for the performance of the management system for medical wastes within the HCF, which is periodically conducted.
• Radiation on communities	• EPB is responsible for supervising and controlling the radioactive contamination in the whole cycle of the radioactive equipment and isotopes, which require the HCF to prepare and submit the EIA report for approval by provincial EPB before issuing the certificate for operation of the radioactive equipment or use of the radioactive isotopes in the case that the investment involves the procurement of radioactive equipment or conduct the radiotherapy. • HCF is responsible for prepare and submit the EIA report for radiation contamination, and ensures that all of the relevant technical specifications and standards are adopted in the design and construction of the structures/buildings related to radioactive equipment and isotopes, if any.	• EA document to be prepared by the HCF and reviewed/approved by the EPB at provincial level; • License for radiological diagnosis and radiotherapy to be issued by the EPB; • Radioactive protection facilities examination and acceptance report to be approved by provincial EPB; • Record of site supervision issued by EPB for the performance of the management system for radiation within the HCF, which is periodically conducted.
• Traffic congestion and safety, construction safety, dust, noise, general solid waste	• EPB is responsible for supervising and controlling environmental issues, and review and clearance of EA; • HCF is responsible for prepare the EA document and implementation of the mitigation measures. • Traffic congestion and safety, and	• EA document to be prepared by the HCF and reviewed/approved by the EPB.

EHS Issues on HCF	Institutions	Documents/information required by the Laws/Regulations
and wastewater	construction safety are considered social issues but often not taken care by the EA documents	
• Occupational health and safety related to medical wastes and radiation	• Health bureau is responsible for supervising and controlling the infectious diseases within the HCFs; • Production Safety Bureau is responsible for supervising and controlling the infectious diseases in industrial enterprises; • HCF and industrial enterprise is responsible for establishing and operating the system of occupational health and safety protection, including training, monitoring and provision of protective gear.	• Occupational health and safety pre-assessment report to be prepared by the HCF/industrial enterprise and reviewed and cleared by the health department.
• Fire protection	• Public security department is responsible for supervise and administrate the fire protection; • HCF is responsible for fire protection within its boundary, including ensure the fire protection measures integrated into the design and regular check of the fire devises, and fire protection drilling.	• Examination and acceptance of fire protection facilities/devices conducted by the public security department, and the permit for operation of the HCF issued after the acceptance is approved by the public security department.
• Medical solid waste transportation and disposal	• Provincial health bureau is responsible for the infectious disease supervision and administration during the cycle of transportation and disposal of medical solid waste; • Provincial EPB is responsible for environmental pollution supervision and administration during the cycle, including the flue gas, fly ash, wastewater, residues; • The owners/operators of medical waste disposal facility and transportation fleet is responsible for proper operation of the facilities and ensure environmental compliance, as well as provide occupational health and safety protection to its staff and workers.	• EA document to be prepared by the sponsor of the disposal and transportation projects and reviewed and approved by EPB; • Environmental Safety Assessment report, a free-stand document, to be prepared by the sponsor of the project and approved by the EPB; • Environmental examination and acceptance report to be prepared by the sponsor and reviewed by the EPB before operation of the disposal facility; • Effluent data monitored on-line and transferred to the EPB; • Flue gas Dioxins [6] monitoring report prepared by the management of the disposal facility on annual basis for EPB's review; • Regular supervision record on the environmental performance of the disposal facility by EPB.

[6] Flue gas Dioxins cannot be monitored by on-line sensors, thus a certified lab. is engaged by the facility management to sample and analysis the Dixons.

4.3. Institutional Capacity and Performance of the Provincial Environmental Management System

131. The key PforR stakeholders involved in environmental management include various levels of health and family planning commissions (health bureaus), environmental protection bureau, and medical waste disposal facilities. This section discusses the institutions and their performance based on site visit observations and consultation with stakeholders.

4.3.1. Medical waste management

132. The healthcare facilities in both provinces have medical waste categorization system, hospital waste management plan, and ad-hoc training programs. Local health bureau and sanitation supervision stations conduct regular supervision on the effectiveness and performance of the in-hospital medical waste management. Each prefecture has a certified company which provides services to the prefecture. The disposal facilities (incinerator) use modern technologies for incineration and air pollution control system, and are monitored by local environmental protection bureaus closely. Since each municipality has one centralized medical waste disposal center, the municipal protection bureau carries out regular site inspections and emission monitoring. Sample emission monitoring report were reviewed and results met applicable emission standards.

133. Two disposal centers in Fujian Province and in Anhui Province were visited respectively. They adopt similar process of pyrolytic incineration and flue gas treatment, primary and secondary combustion chambers that ensure the temperature can reach at least 1200 ^{O}C for 2 seconds in the secondary combustion chamber that is capable of disposing of the genotoxic or cytotoxic wastes and eliminating the dioxins. The alkali tower is used to follow on the combustion chamber to lower the temperature of the flue gas and remove the sulfur oxides and nitrogen oxides from the flue gas. The bag house is used to remove the dust from the flue gas. As required by provincial EPB, the on-line sensors are installed in the stack which transfer the data to the provincial EPB and the local monitoring and control station within the disposal center. The sensors are recalibrated by independent certified companies annually. The dioxins are sampled and analyzed by certified laboratory each year with the analysis report kept on site for check by the provincial EPB each year. It is also learned that the fleet of MSW collection run by these centers are installed with GPS device monitored by the centers.

134. The assessment of the institutional performance based on field work is summarized in below:

- The government agencies involved in the environmental, health and safety management at the level of the PforR are well aware of their responsibilities and duties designated by the laws and regulations. These agencies are independent of the healthcare facilities. Specialized profession institutes are engaged by the healthcare facilities or waste management and disposal facilities to prepare the documents such as EIA or provide information required by laws, regulations and management procedure;

- The technical capacity of the government agencies relies largely on their expert panel to review the technical details of the documents and provide initial comments to the agencies for decision making;
- For enforcement purpose, inspection or supervision are carried out regularly by the relevant government agencies, with specific records or comments provided to the healthcare facilities and medical waste disposal centers.
- The EA for the healthcare facilities places emphasis on the medical waste and the mitigation measures which are also the focus of the review by the EPB. In addition, the contract signed by the HCF with the MSW disposal facility should be provided along with the EA to the EPB for review and approval, without the contract the EA will be rejected by the EPB;
- Public participation and information disclosure is only required for the projects subject to EIA report. In this case, the EPB requires full text of the EA to be disclosed at the website of the EPB. In addition, public participation and disclosure for the other relevant environmental documents, i.e. occupational health and safety preliminary Assessment Report, Environmental Safety Assessment report, is not required.
- The grievance redress established by the EPB and the Environmental Law Enforcement Team is functioning as a department of the EPB to deal with the supervision and responding to the public grievance;
- Routine supervision and inspection on a medical waste disposal center is conducted by the EPB and the Health Bureau regularly, and often jointly. The record for the inspection results is issued on site based on the evaluation. The health bureau often delegates the sanitation supervision station at the same level to conduct site supervision. The sanitation supervision stations are financially supported by the government and adequately staffed. However, the quality of the supervision and examination varies at different levels. In Anhui, generally such supervision largely relies on the personal experience and knowledge of the staff working in the supervision and examination team, and the provincial and municipal level possesses strong capability in terms of experience and knowledge, while the county-level or lower level is relatively weak. Given the massive quantity of the healthcare facilities in the whole province, the provincial EPB and health bureau have to selectively conduct supervision and examination on the medical waste management to large HCFs, i.e. Class III A class hospitals. The EPB and health bureau at county level takes the responsibilities for supervising all of the HCF at county level or lower level, thus a challenge to the capacity of the EPB and health bureau at county level.
- In Anhui, the collection of medical waste in the HCFs at the level of county or higher level to the disposal centers can be guaranteed, while at township or lower level the collection is inadequate. In the case where the HCFs at township or lower level are remote from the waste disposal center, the collection frequency is less than the required. The HCF at the level of county or higher level is required to register its quantity of medical waste in the provincial EPB, but no such requirement is in place for the HCF at township or lower level. Anhui has been making efforts to improve the collection rate in the HCF at township level or lower level. Fujian also is facing the same challenges of less frequency of collection of MSW at the HCFs

remote from the disposal center. In Fujian, the provincial health bureau and the provincial EPB have jointly issued the action plan for concentrated collection and disposal of medical wastes in small HCFs in 2016. In Fujian, the medical waste will be transported by the motorcycles from the village clinics to the township health centers for temporary storage and the township health center will pay RMB 10 for each batch of medical waste to the village clinic. Meanwhile, a staff from the township health center is designated to check and supervise the collection and transportation of medical waste from the village clinic and the county level health bureau provides the technical guidance to the staff. However, due to lack of investment, the temporary storage chamber in the township health center does not have adequate storage capacity of accommodating the wastes from the village clinics.

- The internal system for medical waste management and occupational health and safety protection is established within each HCF with the infection control department established to take charge in the routine management each the HCF, such as training, provision of protective gear, supervision and record keeping, and designation of special quality control nurse in each operation department through the certification process. However, through the site visit the task team found that the performance of the medical waste management within HCFs also varies. Generally, the higher level HCF, i.e. Class III A hospital, presents satisfactory performance; while the performance of lower level HCF, i.e. county and township level HCF, needs to be improved. For example, in the higher level HCF, the sharps containers are mandatory in the nurse stations and used in the cart, and the latex gloves are used by nurse when removing needles and dealing with wastes; the nurse in the lower level HCF is often provided with thin PE gloves to remove needles or wastes which are much cheaper than the latex gloves. The infection control department in HCFs at lower level also needs to be strengthened. Some county and township level healthcare facilities are not adequately staffed and budgeted for this function, so training and supervision is inadequate. The president of healthcare facilities should take responsibility to ensure adequate staffing and resources will be allocated.

- In some cases, handling of medical wastes and materials in a hospital is outsourced to a certified contractor (i.e. scavenging team) by a hospital. The performance of the contractors may vary across different level HCFs. In the HCF at higher levels, the performance is satisfactory, where the medical waste is sorted and packed in line with the regulations, and the packages of the waste is labeled and weighed. The record is made when the scavenging team takes over the packaged on daily basis. The special waste lift is exclusively used for vertical transportation and the transportation route is designed to avoid the flux of visitor to the storage chamber located near the backdoor of the HCF. In the HCFs at county and township level, the medical waste is not always tightly packaged or labeled; the design of temporary storage chamber can be inadequate, where ventilation, washing and sterilization, and rodent barrier are the key issues.

- The medical wastewater treatment stations are established within the HCFs. The primary enhanced process is used to treat the medical wastewater to the standard for discharging into municipal sewers. Two lines of the wastewater treatment process are designed and constructed as required by the design specification. At the HCF of

provincial or municipal level, the on-line monitoring equipment is installed at the outlet of the medical wastewater treatment station and the data is transferred to the EPB and the health bureau respectively. At the county and township level HCF, the staff of the HCF have to take single sample of the effluent and convey it to the local certified laboratory for analysis. The analysis report will be checked during the supervision by the EPB. However, if training on taking samples are inadequate and considering the time for delivering the samples, the test results is a concern. In addition, wastewater treatment facility at lower level healthcare facilities, through the design follows national regulations, sludge treatment is often a concern. However, since the sludge production is very small this doesn't present a substantial risk yet.

- At each municipality of the two provinces of Anhui and Fujian, a medical waste disposal center has been established and operated on concession basis. Most of the centers adopt the incineration technology, with a few using high-temperature cooking and steaming technology. Each center also operates the waste transportation fleet to collect the medical waste from the HCF within the scope of the municipality, including HCF at county, township and village levels. However, the frequency of the collection by the vehicle fleet can be ensured at most once per two days for the HCF in the city and the area with good transportation conditions; for the HCF at remote area or in poor transportation conditions, the medical waste cannot be collected even once a week. As above discussed, it is identified that the packaging, handling of medical wastes and temporary storage chambers are inadequate in such healthcare facilities, the risk of inadequate collection poses a risk that needs to be addressed.
- Medical disposal centers receive tipping fee from hospital which is often too low to cover the costs following government designated rates. In some cases, it is settled through negotiations between medical waste disposal centers and hospitals. In other cases, in some municipalities the government provides subsidies to encourage the disposal centers to increase the collection frequency. To promote the collection rate and increase the collection frequency, Anhui is piloting a new mode where the environmental sanitation department collects the medical waste from the HCF at township or lower level to the county where there is centralized storage center.
- The records for receiving medical wastes are kept in the filing room of the disposal center, which indicate the name of HCF, date, weight, and the plate number of vehicle collecting the waste. These records are checked routinely by the provincial EPB.

4.3.2. Radiation risk management

135. The assessment of the institutional performance is summarized in below:

- Documentation, procedures and capacity are in place to manage the radiation impacts and risks. On radiation exposure to medical workers and communities, in healthcare facilities in the two provinces, there are proper protection ware and shelter, and portable detectors are provided to monitor and control radiation leakage. For medical radiation equipment, the licensing, safe use, work-site detection, maintenance, emergency response and decommissioning are specifically required and regulated. For radiation contaminated wastes, specific requirements on

collection, separation, storage, packaging, transport, and final disposal are required as well.

- In managing the retired radiation equipment, the practices follow applicable regulations. The users prepare environmental assessment for the decommissioning of radioactive equipment or isotopes for review and clearance by provincial level environmental protection bureau. Radioactive sources which remain the value of use are transferred to other users following the regulations on safety and protection of radioactive isotopes and radioactive equipment. Users return the radioactive source to the producers, the importers or the certified facility for storage. The users are required to submit the request for change or cancellation of the radiation safety certificate in the provincial environmental protection bureau.
- The institutions involved in the management of the medical waste have been established with responsibilities and duties clearly designated;
- The government agencies are capable of fulfilling their duties, i.e. review and approval, supervision and inspection, and grievance redress;
- The procedure for review and clearance, and supervision and examination, is well designed to ensure the objective of protection of OHS and community health and safety;
- Routine supervision of the radiation by the government department is satisfactorily performed;
- The internal system for protection of staff/workers health against radiation has been established and operated in the Healthcare facilities, and its performance is acceptable.

4.4. Assessment of Environmental Management System against Bank PforR Policy and Directives

136. Based on assessment of country environmental, health and safety system, it is concluded that the legal and regulatory framework in China is comprehensive and converging with international standards. The legal framework of laws, regulations, guidelines, policies, and standards, as well as the implementation mechanism provide full coverage over the environment and health and safety aspects. In general, the framework is consistent with the Bank PforR Policy and Bank PforR Directive in terms of principle and key elements. The legal framework provides a reasonable basis for addressing environment, health and safety issues likely to arise in the proposed PforR. A comparison of country environmental management system relevant to the PforR against PforR Bank Policy and respective Bank PforR Directive is summarized in Annex 2.

4.5. Summary of Key Issues

137. The assessment of disposal of medical waste and radiation risk identified potential weakness of effectively operation of the environment management system in the two provinces: (i) as the activities included under the PforR extend medical services to remote

and poor area, the collection of medical wastes to transport of disposal facilities maybe inadequate due to cost reasons or lack of adequate enforcement; (ii) Lower level (counties and below) healthcare facilities and authorities may be constrained due to lack of adequate staff, training, and monitoring or enforcement tools; and (iii) the prefecture level environmental enforcement system (one level higher than where the interventions included in the PforR take place) may not have a systematic approach to periodically verify health care facilities and disposals facilities for compliance with environmental regulation. Therefore, the implementation of the existing environmental, health and safety management system, institutional coordination and capacity building should be strengthened, particularly at the low administrative level (namely below county level); and the prefecture and/or county level agencies should have their capacity strengthened to ensure adequate performance of the enforcement systems.

5. Assessment of Social Management Systems and Performance

5.1. Legal and Regulatory Framework

5.1.1. Land Acquisition

138. On managing potential social impacts caused by land acquisition and resettlement, there are a range of laws and regulations adopted in China. Among them, the Land Administration Law and State Council Decision on Deepening the Reform on Strict Management to land are two key legal basis for defining key aspects of land acquisition system in China. Based on provisions of national laws, Anhui and Fujian Provinces also adopted a series of policies and regulations governing land acquisition process in two provinces, including compensation rates, resettlement measures, approval procedures, and information disclosure to ensure that the original living standards of affected people are not lowered and their long-term livelihoods are guaranteed. The following is a summary of key provisions of these laws and regulations.

139. **Land ownership and land use rights.** The People's Republic of China practices socialist public ownership of land, namely, ownership by all people and collective ownership by the working people. Land in urban areas of cities is owned by the State. Land in rural and suburban areas is owned by farmer collectives, except for those portions of land that legally belong to the State (Articles 2 and 8 of Land Administration Law of the People's Republic of China).

140. To meet the demands of public interest, it is permissible to requisition lands owned collectively and premises owned by entities and individuals or other realties according to the limit of statutory power and procedures. When requisitioning collectively-owned land, it is required, in accordance with the law and in full amount, to pay land compensation fees, placement subsidies, compensations for the above-ground fixtures of the land, seedlings and other fees, arrange for social security fees for the farmers with land requisitioned, guarantee their livelihood and protect their lawful rights and interests. When requisitioning the premises owned by entities and individuals or other realties, it is required to compensate for demolition in accordance with the law and to protect the lawful rights and interests of the owners of the requisitioned realties. When requisitioning the individuals' residential houses, it is required to guarantee the housing conditions of the owners of the requisitioned houses (Real Right Law of the People's Republic of China Article 42).

141. In undertaking land contracts in rural areas, women shall enjoy equal rights with men. The legitimate rights and interests of women shall be protected in contract. No organizations or individuals may deprive the rights of women to land contractual management to which they are entitled, or to infringe upon such right. During the term of contract, the party contracting out the land may not take back the contracted land. During the term of contract, the party contracting out the land may not readjust the contracted land (Law of the People's Republic of China on Land Contract in Rural Areas, Article 6, Article 26 and Article 27).

142. **Regulations on land compensation rates.** Compensation shall be made for land expropriated on the basis of its original purpose of use. Compensation for expropriated

cultivated land shall include compensation for land, resettlement subsidies and compensation for attachments and young crops on the requisitioned land. Compensation for expropriated cultivated land shall be six to ten times the average annual output value of the expropriated land, calculated on the basis of the three years preceding such requisition. Resettlement subsidies for expropriated arable land shall be calculated according to the agricultural population needing to be resettled. The agricultural population needing to be resettled shall be calculated by dividing the area of such land by the average area of the original cultivated land per person of the unit the land of which is expropriated. The standard resettlement subsidies to be divided among members of the agricultural population needing resettlement shall be four to six times the average annual output value of the expropriated cultivated land calculated on the basis of the three years preceding such expropriation. However, the maximum resettlement subsidies for each hectare of the expropriated arable land shall not exceed fifteen times its average annual output value calculated on the basis of three years preceding such expropriation. (Land Administration Law of the People's Republic of China. Article 47)

143. Local people's governments at or above county level shall take practical measures to protect the land-loss farmers against any decrease in living standards resulting from land acquisition. Land compensation, resettlement subsidies and compensation for attachments to the ground and young crops shall be paid promptly and at the full amount in accordance with law. The people's governments of provinces, autonomous regions and municipalities directly under the Central Government shall assent to the increase of resettlement subsidies to the farmers rendered landless due to land acquisitions whose original living standards cannot be maintained or whose social security fees cannot be maintained after being paid land acquisition compensations and resettlement subsidies according to the current laws and regulations. In case the total amount of land acquisition compensations and resettlement subsidies reach the legal maximum, yet are still insufficient for the farmers whose land has been acquired to retain their original living standards, the local people's government may compensate for the shortfall by providing income from the use of state-owned land (Decision of the State Council on Deepening the Reform on Strict Management to land, Article 12).

144. **Regulations on measures to resettle farmers.** Local governments at or above county level shall enact specific measures to guarantee the long-term livelihood of the farmers whose land is acquired. For projects with stable benefits, the farmers may buy a share via the lawfully authorized rights of construction land usage. The local government within the city planning districts shall enable the farmers whose land is acquired to participate in the urban employment system and establish a social security system. In acquisition of land owned by farmers collectively outside the city planning districts, the local government shall be obliged to retain the necessary land for the farmers to cultivate or, if this is not possible, arrange corresponding jobs for them. Land-loss farmers with no basic production and living conditions shall be removed and resettled to another place. (Decision of the State Council on Deepening the Reform on Strict Management to land, Article 13)

145. Peasants with requisitioned land may choose the following resettlement approaches: (i) Based on Agricultural Production Resettlement Method. For collective land beyond the urban planning area, it is necessary to ensure that the land-loss farmers have sufficient cultivated land to continue agricultural production. This may be achieved by utilizing rural collective land, contracted land returned voluntarily by peasants, or new cultivated land created by land transfer and land exploitation and arrangement. (ii) Based

on Reemployment Resettlement Method. It is necessary to take action to provide free skills training for peasants with requisitioned land and to arrange proper employment for them. Units using requisitioned land should give priority to these peasants in employment under the same conditions. Peasants using collective land which is completely acquired for urban planning areas should be brought into the urban employment system, and a social security system established for them. (iii) Based on Stock Ownership and Profit Sharing Resettlement Method. For project land which will have long-term stable profits, the rural collective economic organization which has had land requisitioned may negotiate with relevant units to allow the peasants to become shareholders by means of land acquisition compensation or through evaluated use right of approved construction land. The rural collective economic organization and the peasants should sign a contract to ensure that the peasants may gain profits for preference stock. This should occur only on the basis that the peasants have voluntarily entered into such an arrangement. (iv) Resettlement in other places. If local areas fail to provide basic productive and living conditions for peasants with requisitioned land, the government may carry out resettlement in other places provided that it shall give full consideration to the ideas of the relevant rural collective economic organizations and peasants (Article 2 of Guiding Opinions on further making perfect policy on land acquisition compensation and resettlement).

146. **Regulations on land acquisition information disclosure.** Farmers' collective ownership of land and contractual operation right of land shall be guaranteed during the process of land acquisition. Prior to the report of land acquisition being sent to higher authorities for examination and approval, the purpose, location, compensation rates for land acquisition and the resettlement arrangements shall be made public to the farmers whose land is to be acquired. The country collective economic organizations and farmers must confirm the investigation results of the status of the land to be acquired. If necessary, the Ministry of Land and Resources shall organize a public hearing according to relevant regulations. The relevant materials acknowledged and confirmed by the farmers whose land is to be acquired shall be deemed as the essential materials for report for approval of land acquisition. The establishment of the coordination and arbitration system for solving disputes on land acquisition compensations and resettlements shall be expedited so as to defend the lawful rights and interests of the land-loss farmers as well as the land users. The proceedings of land acquisition shall be made public after approval, except in exceptional cases. (Decision of the State Council on Deepening the Reform on Strict Management to land, Article 14).

147. The provincial government shall formulate standards for the distribution of land compensation fees within the rural collective organizations based on the principle that the land compensation fees shall be used for the farmer households whose land is acquired. The rural collective organization shall make the information on the revenues and allocation of the land compensation fees available to its members, and receive their supervision. The agriculture, civil affairs and other departments shall strengthen the supervision over the allocation and use of the land compensation fees within the rural collective organization (Decision of the State Council on Deepening the Reform on Strict Management to land, Article 15).

148. An administrative organ shall disclose government information in a timely and accurate manner. Where any administrative organ discovers any false or incomplete information that has affected or may affect social stability or has disturbed or may disturb social management order, it shall disclose the corresponding accurate government

information within its scope of duties to clarify. (Provisions of the People's Republic of China on the Disclosure of Government Information, Article 6)

149. An administrative organ shall disclose government information that is voluntarily disclosed through government bulletins, government websites, news releases, newspapers and periodicals, broadcasting, television or any other means which is easy for the general public to access. (Provisions of the People's Republic of China on the Disclosure of Government Information, Article 15)

150. The government at various levels shall set up a place for accessing and consulting government information at national archives and public libraries which is equipped with corresponding facilities and equipment for the convenience of citizens, legal persons or other organizations to access such government information. An administrative organ may, based on actual needs, establish such places as a public consulting room, a site for demanding materials, information board and electronic information screen for government information disclosure. An administrative organ shall provide the government information voluntarily disclosed by it to national archives and public libraries in a timely manner. (Provisions of the People's Republic of China on the Disclosure of Government Information, Article 16)

151. **Regulations on land use verification and approval.** For a construction project that needs to be verified and approved, the entity using the land for construction shall file an application for a preliminary verification at the stage of feasibility study. For a construction project that needs to be ratified and archived, the entity using the land for construction shall file an application for preliminary verification before applying for ratification and archiving. The preliminary verification shall be finished according to the present measures prior to the ratification or examination and approval of a construction project. If the construction project has not been preliminarily verified or fails to pass the preliminary verification, the party concerned shall not be approved to convert the land for agricultural use into that for construction use or to have the land requisitioned, nor shall it be permitted or to go through the land supply procedures (Measures for the Administration of Preliminary Verification Examination of the Land Used for Construction Projects, Article 5, Article 15).

152. Where land is to be expropriated by the State, the expropriation shall, after approval has been obtained through the relevant legal procedures, be announced by the people's governments at or above the county level which shall help execute the requisition. (Land Administration Law of the People's Republic of China. Article 46).

Table 5-1: Main Laws and Regulations regarding Land Acquisition

Laws and Regulations	Key Provisions
Land Ownership and Use Right Land Administration Law, Article 2 and 8	The People's Republic of China practices socialist public ownership of land, namely, ownership by the whole people and collective ownership by the working people. Land in the urban areas of cities is owned by the State. Land in rural and suburban areas is owned by rural collectives. House sites and private plots of cropland are owned by rural collectives.
Land Acquisition and resettlement	To meet the demands of public interest, it is permissible to requisition lands owned collectively and premises owned by entities and individuals

Laws and Regulations	Key Provisions
Real Right Law of the People's Republic of China Article 42).	or other realties according to the limit of statutory power and procedures. When requisitioning collectively-owned land, it is required, in accordance with the law and in full amount, to pay land compensation, resettlement subsidies, compensations for green crop and attachments; and cost for arranging social security for land loss farmers to guarantee their livelihood and protect their lawful rights and interests.
Law of PRC on Land Contract in Rural Areas, Article 6, Article 26 and 27.	In undertaking land contracts in rural areas, women shall enjoy equal rights with men. The legitimate rights and interests of women shall be protected in contract. No organizations or individuals may deprive the rights of women to land contractual management to which they are entitled, or to infringe upon such right.
Compensation Policies on Expropriated Land Land Administration Law of the People's Republic of China. Article 47	Compensation shall be made for land expropriated on the basis of its original purpose of use, which shall include compensation for land, resettlement subsidies and compensation for attachments and young crops. Compensation for expropriated cultivated land shall be six to ten times the average annual output value of the expropriated land, calculated on the basis of the three years preceding such requisition. Resettlement subsidies calculated according to the agricultural population needing to be resettled, shall not exceed fifteen times its average annual output value.
Rehabilitation of Affected People Decision of the State Council on Deepening the Reform on Strict Management to land, Article 12	Local people’s governments at or above county level shall take practical measures to protect the land-loss farmers against any decrease in living standards resulting from land acquisition. Land compensation, resettlement subsidies and compensation for young crops shall be paid promptly and at the full amount in accordance with law. The people's governments shall assent to the increase of resettlement subsidies to the farmers rendered landless due to land acquisitions whose original living standards or social security fee cannot be maintained after being paid land acquisition compensations according to the current laws and regulations.
Regulations on measures to resettle farmers Decision of the State Council on Deepening the Reform on Strict Management to land, Article 13	Local governments at or above county level shall enact specific measures to guarantee the long-term livelihood of the farmers whose land is acquired. For projects with stable benefits, the farmers may buy a share via the lawfully authorized rights of construction land usage. The local government within the city planning districts shall enable the farmers whose land is acquired to participate in the urban employment system and establish a social security system. In acquisition of land owned by farmers collectively outside the city planning districts, the local government shall be obliged to retain the necessary land for the farmers to cultivate or, if this is not possible, arrange corresponding jobs for them.
Regulations on land acquisition information disclosure Decision of the State Council on Deepening the Reform on Strict Management to land, Article 14	Farmers’ collective ownership of land and contractual operation right of land shall be guaranteed during the process of land acquisition. Prior to the report of land acquisition being sent to higher authorities for examination and approval, the purpose, location, compensation rates for land acquisition and the resettlement arrangements shall be made public to the farmers whose land is to be acquired. The rural collective economic organizations and farmers must confirm the survey results of the status of the land to be acquired. If necessary, the Ministry of Land and Resources shall organize a public hearing according to relevant regulations.

Laws and Regulations	Key Provisions
Decision of the State Council on Deepening the Reform on Strict Management to land, Article 15	The provincial government shall formulate standards for the distribution of land compensation fees within the rural collective organizations based on the principle that the land compensation fees shall be used for the farmer households whose land is acquired. The rural collective organization shall make the information on the revenues and allocation of the land compensation fees available to its members, and receive their supervision.
Decision of the State Council on Deepening the Reform on Strict Management to land, Article 16	The government at various levels shall set up a place for accessing and consulting government information at national archives and public libraries which is equipped with corresponding facilities and equipment for the convenience of citizens, legal persons or other organizations to access such government information. An administrative organ shall provide the government information voluntarily disclosed by it to national archives and public libraries in a timely manner.
Measures for the Administration of Preliminary Verification Examination of the Land Used for Construction Projects, Article 5, Article 15	For a construction project that needs to be verified and approved, the entity using the land for construction shall file an application for a preliminary verification at the stage of feasibility study. For a construction project that needs to be ratified and archived, the entity using the land for construction shall file an application for preliminary verification before applying for ratification and archiving. If the construction project has not been preliminarily verified or fails to pass the preliminary verification, the party concerned shall not be approved to convert the land for agricultural use into that for construction use or to have the land requisitioned, nor shall it be permitted or to go through the land supply procedures

5.1.2. Accessibility and equity

153. One key element of the "Healthy China 2030 Plan" is to establish and complete a basic health insurance and protection system, which is based on basic healthcare insurance, and supplemented with other forms of insurance and commercial health insurance. The basic approach is to effectively integrate social health insurance, catastrophic medical insurance, commercial healthcare insurance and a medical aid scheme in order to develop a matured healthcare insurance system in the country by 2030. In 2009 and 2015, the Ministry of Civil Affairs and State Council issued regulations[7] to further improve the medical aid scheme. The scheme provides additional financial support to the low-income populations based on their affordability and actual medical costs to meet their needs of basic healthcare services. The scheme has a stable source of financing, operates according to relevant regulations with effective results.

154. China has built up a basic medical insurance system covering both urban and rural residents. Urban Employee Basic Medical Insurance (UEBMI) is mandatory for workers in urban areas, with premiums paid by both employers and employees and covers expenses

[7] Opinions on further Strengthening the Medical Financial Assistance System in Rural and Urban Areas (Min Fa, 2009 NO.81) and Notice of the State Council on Further Improving the Medical Financial Assistance System and Nationwide Implementation of Medical Financial Assistance for Patients with Serious Illness (Guo Ban Fa, 2015 NO.30)

incurred at outpatient clinics, for inpatient services and at designated pharmacies. Those not covered by UEBMI can join the voluntary Urban Resident Basic Medical Insurance (URBMI), jointly financed by premiums and government. Rural residents enroll voluntarily in the New Rural Cooperative Medical Scheme (NRCMS) as families, financed by premiums and the government. Government subsidies play a dominant role in the financing of URBMI and NRCMS. The three basic medical insurance systems all establish a pooling fund for inpatient expenses in compliance with regulations and some major outpatient diseases, with specific deductibles, co-payment percentage, and reimbursement cap. Those in poverty who are unable to afford the basic medical insurance premium or the OOP payments of medical insurance are subsidized by an urban and rural Medical Financial Aid (MFA) system, which provides a safety net in the multi-level health insurance systems in China, financed through various channels including government and public donations to ensure the access of poor people to basic health care. By the end of 2012, the UEBMI, URBMI and NRCMS had covered 265 million, 272 million and 805 million residents, respectively, accounting for 95.7% of total population in the country. The expansion of medical insurance has greatly increased the accessibility to health services, for example, the rate of early discharge due to financial burden has dropped from 63.6% in 2003 to 28.0% in 2011. Continuous government input in basic public health services also elevated the accessibility to public health services. For instance, the rate of prenatal care rose from 43.2% in 2003 to 62.8% in 2011, and the rate of hospital births increased from 73.3% in 2003 to 95.8% in 2011.

155. There are two government programs focusing on improving the accessibility and equity of basic health services for the poor and to reduce the burden of disease on households: (i) Medical Financial Aid (MFA); and (ii) Serious Illness Insurance (SII).

- Medical Financial Aid (MFA): The program was initiated in 2003 and has been rolled out nationwide. Families who receive the minimum living allowance and poverty-stricken individuals are set to be the main recipients of the medical assistance. MFA is expected to alleviate the financial burden from major illness for the poor. It mainly provides double assistance to the targeted population: (1) subsidize poor households' enrollment in social health insurance; (2) reimburse a majority of out-of-pocket health expenditure services (the patient co-pay part after the reimbursement of social health insurance) of outpatient services of chronic / serious illnesses and inpatient services. MFA is a highly decentralized program, with local governments having discretion over both policy design and implementation. Both Anhui and Fujian have their own programs following the government guidelines.

- Serious Illness Insurance (SII): SIIP was first rolled out on a trial basis in 2009 and began to be implemented nationwide in 2015. It reimburses patients for medical bills that far exceed basic medical insurance. This government-supported program aims to address poverty exacerbated by ill health. Treatment for 605 critical illnesses is now covered by 16 insurance companies, helping many with the financial burden associated with health care. The number of Chinese covered by the program exceeded 1.05 billion by September 2016. Once successfully implemented, SII will cover all urban and rural residents, except for public servants, servicemen and company workers who have access to serious illness insurance from insurances provided by their employers.

156. On the supply side, the activities supported under the PforR will include the strengthening of service delivery capacity, with a focus on county level and below. By

promoting the integration of social health insurance schemes with the support of MAS and CMI, as well as improving the provision of basic health care services, especially in the poorest rural areas, the proposed PforR should enhance the accessibility of the vulnerable groups.

5.1.3. Public Participation

157. The legal framework for encouraging public participation in health reform program is reflected in three different aspects. One is the general requirement of information disclosure by national government. According to provisions of the People's Republic of China Disclosure of Government Information, "an administrative organ shall disclose government information in a timely and accurate manner. When any administrative organ agency discovers any false or incomplete information that has affected or may affect social stability or has disturbed or may disturb social management order, it shall disclose the corresponding accurate government information within its scope of duties to clarify. (Article 6)" And such disclosure should be made "through government bulletins, government websites, news releases, newspapers and periodicals, broadcasting, television or any other means which is easy for the general public to access." (Article 15) "The government at various levels shall set up a place for accessing and consulting government information at national archives and public libraries which is equipped with corresponding facilities and equipment for the convenience of citizens, legal persons or other organizations to access such government information." (Article 16)

158. The second aspect of public participation is a series of measures adopted under the healthcare reform program in pilot cities, which include more transparent information and full coverage of public health service consultations to local population, particularly those vulnerable group of population. The third aspect of public participation is for those with specific complaints they could go through existing administrative appeal and complaint office set up in each county in China. Although such office is not set up especially for the health care reform program, the issues raised could always be brought to the attention local government agency in charge of health care reform.

5.1.4. Ethnic Minorities

159. In China there are more than 400 laws and regulations addressing the legal requirements and stipulations of ethnic minorities. They cover almost every aspect of life from political representation, to cultural integrity, to economic development. All these Chinese legislation promotes preferential treatment for minority nationalities in some contexts and promotes equitable treatment of all groups in others. However, the "Constitution of the People's Republic of China" and the "Law of the People's Republic of China on National Region Autonomy" are essential and sets the framework for all subsequent legislation, which is summarized in the table below.

Table 5-2: Main Laws and Regulations regarding Ethnic Minorities

Laws and Regulation	Key Provisions
Constitution	All nationalities in the People's Republic of China are equal. The state protects the lawful rights and interests of the minority nationalities and upholds and develops a relationship of equality, unity and mutual assistance among all of China's nationalities. Discrimination against and oppression of any nationality, and any act undermining the unity of the nationalities is prohibited. The state assists areas inhabited by minority nationalities in accelerating their economic and cultural development according to the characteristics and needs of the various minority nationalities. All national autonomous areas are integral parts of the People's Republic of China. It also establishes that "all nationalities have the freedom to use and develop their own spoken and written languages and to preserve or reform their own folkways and customs.
The National Regional Autonomy Law	The National Regional Autonomy Law emphasize on indigenous people's rights and interests in national autonomous regions, among which the most important are as follows: i) The resolutions, decisions, orders and instructions concerning national autonomous areas adopted by the State organs at higher levels should suit the conditions in these areas; ii) While exploiting resources and undertaking construction in national autonomous areas, the State shall give consideration to the interests of these areas, make arrangements favorable to the economic development there and pay proper attention to the productive pursuits and the life of the minority nationalities there. The State shall take measures to give due benefit compensation to the national autonomous areas from which the natural resources are transported out; iii) While exploiting resources and undertaking construction in national autonomous areas, the organizations or individuals shall take effective measures to protect and improve local living and ecological environment and to prevent and control pollution and other public hazards.

5.2. Implementation of Social Management Systems

5.2.1. Land acquisition practice

160. The People's Republic of China practices socialist public ownership of land, namely, ownership by the whole people and collective ownership by the working people. Land in the urban areas of cities is owned by the State. Land in rural and suburban areas is owned by peasant collectives, except for those portions of land which belong to the State as provided for by law; house sites and private plots of cropland and hilly land are owned by peasant collectives. To meet the demands of public interest, it is permissible to requisition lands owned collectively and premises owned by entities and individuals or other realties according to the limit of statutory power and procedures. When requisitioning collectively-owned land, it is required, in accordance with the law and in full amount, to pay land compensation fees, placement subsidies, compensations for the above-ground fixtures of the land, seedlings and other fees, arrange for social security fees for the farmers with land requisitioned, guarantee their livelihood and protect their lawful rights and interests. When requisitioning the premises owned by entities and individuals or other realties, it is required to compensate for demolition in accordance with the law and to protect the lawful rights and interests of the owners of the requisitioned realties. When requisitioning the individuals' residential houses, it is required to guarantee the housing conditions of the owners of the requisitioned. Based on relevant laws and regulations, a set

of institutions has been established in managing the process of land acquisition. They include Ministry of Land Resources at national level, Land Resources Department at provincial level, and Land Resources Bureaus at municipality and county levels, as well as land institute at township. These institutions are equipped with functions of land use planning and land use management at different administrative levels, which includes the responsibility for managing the process of land acquisition for the state construction.

161. On the potential social impacts caused by land acquisition, the current legal framework, has set up a clear procedure for obtaining approval of land acquisition for investment projects, and managing the land acquisition process. Any project without approval of land acquisition should not be allowed to proceed. One key requirement is to obtain approval of land preliminary verification issued by provincial land department or Ministry of Land Resources, which should be completed before the ratification and approval of a construction project. If the construction project has not been preliminarily verified, the party concerned shall not be approved to convert the land from agricultural use into that for construction use. Once the approval of land preliminary verification is obtained, the actual land acquisition could begin. To manage potential social impacts, the current legal system specifies key steps involving with land acquisition, which include informing the affected people about the purpose, location, compensation rates, and rehabilitation measures for the land to be acquired, having affected parties to confirm the outcome of land survey, and holding public hearing on the land to be acquired.

162. Following the confirmation, the local county land resources bureau will begin the process of compiling land acquisition application documents, and submit them to higher level of government for approval. Once it is approved, land acquisition decree should be published in the affected villages within 10 days of the approval. After the decree, the affected rural collectives and individuals should bring relevant certificates and go the required place to register the land acquisition. Based on land acquisition scheme and registered data, local land resources bureau should prepare "land acquisition compensation and rehabilitation scheme" and disclose such scheme to affected villages. When all compensation for all items paid, the affected rural collectives and individuals should release the acquired land areas to local land resources bureau.

163. Among different types of health care facility construction projects, regardless of the amount of land acquisition and type of land acquisition, all project sponsors have obtained relevant approval during the project feasibility study stage, which included an approved project proposal from the local reform and development commission, a land preliminary verification from the land resources department, and a land use planning permit from the local planning department. All project sponsors were able to obtain the land areas for the projects following the established land acquisition process. Under the land acquisition process, the local land resources bureau is responsible for supplying the land area to the project sponsor following the completion of land acquisition from rural collectives to the state. The project sponsor will be given a land use certificate for the acquired land area after paying the land lease price plus various taxes and fees to the local government. The actual process of land acquisition, which includes conducting survey, public hearing, registration, and providing compensation to affected parties, is handled by the local land resources bureau with assistance of the township government. The project sponsor might not be fully aware of the details regarding compensation policies for the affected villages and delivery of compensation and rehabilitation.

164. The discussions with project sponsors and visits to project sites confirmed that such land acquisition procedures were generally followed in different local areas, and all affected villages were notified about land acquisition, participated in measurement of impacts, and were provided with the compensation indicated in the provincial decree. Because most new health care facilities are located in newly developed area of county towns, the compensation and rehabilitation adopted is often higher than the rates established in accordance with provincial decrees. Taking Tianchang City in Anhui Province as an example, for two county level hospitals recently completed land acquisition, the adopted compensation rates were significant higher than that set by Anhui Provincial Government. The affected villages were provided two choices of rehabilitation, one is cash compensation set at CNY42,000 per mu, and the other is combination of cash compensation plus providing 5% of construction land for the village collective. Given the high return on those construction land, the resulted compensation could reach CNY120,000 per mu, more than three times of compensation rate set by the province. In Longyan City, Fujian Province, visits to two different counties also confirmed the fact that land acquisition procedures were carefully followed for both new construction of county level hospitals, such as Wuping Women and Children Hospital and Changting Tingzhou Hospital, and construction or expansion of township health care centers, such as expansion of Hetian Town Health Care Centers in Changting County, and construction of Xiaba Township Health Care Center in Wuping County.

165. Based on these visits (more details in Annex 4) and past experience with similar land acquisition procedures in the region, as long as the procedure is followed, the basic interests of affected people were protected. The findings also showed adherence to the principle of avoiding or minimizing displacement and demonstrated that affected people are assisted in improving or at least restoring their livelihood and living standards.

166. For the required temporary land areas during project construction, instead of relying on local land resources bureaus, project sponsor often negotiated directly with local villages. The compensation rates for temporary land occupation are often set following annual crop value plus the cost of restoring affected land to original conditions. For land areas owned by village collective, the compensation will be paid directly to affected village. For land areas contracted to individual households, compensation will be paid directly to affected households.

5.2.2. Management of Other Social Issues

167. Regarding public participation, based on review of implementation of healthcare reform in selected pilot cities, it is important to highlight the following good practices: (i) the content and details of healthcare reform was widely informed the public through different forms of media; (ii) the improved coverage of healthcare benefits, particularly to vulnerable groups, and face-to-face interaction enable awareness about the basic content of reform measures, coverage of basic health insurance and proposed improvements; (iii) regular visits by county or township healthcare teams provided public health services for all communities, which offer opportunities for residents to voice their concerns regarding healthcare plans. Additionally, if there are a special issue or complaint on different aspect of healthcare program, they could always make complaint through regular county appeal and complaint office set up in all counties.

168. On the issue of accessibility and equity, the government has established a comprehensive system for the management of social issues related with healthcare development and health sector reform in both provinces, such as accessibility of healthcare, disparity of health insurance coverage, quality of healthcare, health outcome and efficiency of health. This system provides a reasonable basis for addressing the social issues related to activities supported under the PforR.

5.2.3. Institutional Arrangement for Implementing the PforR

169. Institutional Arrangement at the Provincial Level: The PforR covers a part of the overall provincial health reform programs, therefore the existing structure in the provinces will be followed under the PforR. In each province, there is vertical structure for the health reforms which goes from the province, to the prefectures, and the counties.

170. In Fujian, the Provincial Healthcare Reform Leading Group headed by the secretary of Provincial Party Committee is the leading organization for the overall health sector reforms program. It comprises of director generals from each sector of the provincial government. There is a Health Reforms Office, located in the provincial Health and Family Planning Commission. The Health Reforms Office is in charge of the reform activities in the province. The Health Reforms Office comprises of directors of nine departments in the provincial Health and Family Planning Commission. In addition, there is a provincial Medical Security Administration, with a mandate to reform and consolidate the management of the medical insurances.

171. In Anhui, the Provincial Healthcare Reform Leading Group is headed by the Governor. Under the multi-agency high level leading group, there is an Office located in the Provincial Health and Family Planning Commission, and headed by the Director General of the Commission. The Office is composed of Directors of Planning and Budget, Human Resources Management, Finance, Science and Education, International Cooperation, Women and Children, Medical Administration, and Primary Health. The responsibilities of the Office are to: (i) prepare documents and reports for the Leading Group; (ii) formulate policies and measures to deepen the reforms; (iii) draft mid-term and long term plans and annual plan; (iv) coordinate among relevant agencies in drafting reform documents and implementation plans; (v) organize monitoring and evaluation activities; (vi) provide technical support and training; (vii) organize research and knowledge sharing activities; and (viii) provide secretarial service to the Leading Group.

172. Institutional Arrangement at the Central Level: The existing institutional arrangement and capacity at the central level was assessed as adequate to implement the proposed PforR. At the central level, the State Council Health Reform Office (SCHRO) is the leading agency for the national health reforms agenda. It provides policy guidance to all provinces in the country. For the PforR program, SCHRO is the direct counterpart of the Bank at the central level. SCHRO will be empowered to make decisions for the PforR direction and will play an important role in ensuring the achievement of the PforR development objectives. The Project Management and Supervision Center of NHFPC, which has been managing projects financed by the Bank, will serve as the secretariat to the SCHRO. It will be in charge of the implementation of the day-to-day activities under the central component. This component includes policy development and sector studies which could have impacts on the health reforms at the national level. Additionally, this component will finance activities such as verification of selected DLI results, technical assistance,

coordination, capacity building, exchange of experiences, dissemination of the successful pilots, and implementation support/guidance to the provinces. There is an Experts Panel at the central level which services as a pool of technical experts to the government agencies under the national health reform program.

5.3. Institutional Capacity and Performance

173. The conclusion of the technical assessments in Anhui and Fujian provinces is that there is strong commitment and adequate capacity to implement the proposed PforR in both provinces and at the central level. The main stakeholders in implementation of the PforR are the Health and Family Planning Commission in each province and the State Council Health Reform Office (SCHRO) at the central level. Political commitment to the national health reforms is high and the support from the Bank through the PforR will help the participating provinces to achieve results by better aligning incentives to support results within the government's own program and to achieve the PforR development objectives and defined indicators.

174. Discussion with government departments and site visits to health care facilities in the provinces of Fujian and Anhui at municipal, county and township levels, have demonstrated that the institutional arrangement at the program level has been clearly established and the procedures for introducing various health reform measures, and preparing and managing physical investment activities to be covered under the PforR have been well operated and maintained.

175. The ESSA finds that, in general, the social management system to manage the identified social risks related to the activities to be supported under the PforR are in place, but some improvement should be made to ensure their proper implementation.

6. Summary of Assessment of Environmental and Social Systems

176. The Environmental and Social Systems Assessment as defined in the Bank PforR[8] should assess the degree to which systems relevant to the PforR:

a. Promote environmental and social sustainability in the program design; avoid, minimize, or mitigate adverse impacts; and promote informed decision-making relating to the PforR's environmental and social impacts.

b. Avoid, minimize, or mitigate adverse impacts on natural habitats and physical cultural resources resulting from the PforR.

c. Protect public and worker safety against the potential risks associated with: (i) construction and/or operations of facilities or other operational practices under the PforR; (ii) exposure to toxic chemicals, hazardous wastes, and other dangerous materials under the PforR; and (iii) reconstruction or rehabilitation of infrastructure located in areas prone to natural hazards.

d. Manage land acquisition and loss of access to natural resources in a way that avoids or minimizes displacement, and assist the affected people in improving or, at the minimum, restoring their livelihoods and living standards.

e. Give due consideration to the cultural appropriateness of, and equitable access to, PforR benefits with special attention to the rights and interests of the Indigenous Peoples[9] and to the needs or concerns of vulnerable groups.

f. Avoid exacerbating social conflict, especially in fragile states, post-conflict areas, or areas subject to territorial disputes (not applicable to this operation).

177. The ESSA concluded that, in general, the rules and regulations are consistent with the Bank PforR Policy and the Bank PforR Directive, but the capacity to effectively enforce certain regulations in some agencies could be improved. Thus, recommendations are made to address these shortcomings and are included in the Program Action Plan or Disbursement Linked Indicators. The summary of the assessments relevant for the activities to be supported under the PforR is presented in Annex 2.

[8] OPCS5.04-POL.01

[9] For the purpose on this Policy indigenous people are defined as ethnic minorities.

7. Consultation and Disclosure

178. During the preparation of ESSA, the World Bank assessment team carried out various consultation with representatives of two provincial PTFs, provincial environment protection and land resources departments, and officials from local government agencies in order to identify potential environmental and social impacts to be associated with the proposed PforR. In addition, the task team made field visits to different sizes of health care facilities in Anhui and Fujian, particularly those county level hospitals and township level healthcare centers as well as village clinics, and held discussions with staff managing these facilities, including those in charge of construction and management of these facilities. The discussions and visits provided good understanding of healthcare conditions in two provinces, and created the basis for the development of this assessment report. Table 7-1 provides a summary of these discussions and visits during ESSA preparation.

Table 7-1. List of Meetings and Visits in ESSA Preparation for Health PforR

Date (2016)	Province	Location	Stakeholders	Activity
7/23-27	Anhui	Hefei	Over 50 staff from Fujian and Anhui provincial, city and county health dept. and bureaus	Introduce PforR and discuss possible investments
7/28-30	Fujian	Sanming	Over 30 staff from counties, cities and provincial health departments of Fujian Province	Introduce PforR and discuss possible investments
11/22-24	Fujian& Anhui	Fuzhou	Over 60 staff from Ministry of Health, counties, cities and two provinces	Discuss eligibility criteria for PforR
8-24	Fujian	Fuzhou	Provincial agencies, Health and Family Planning, Financial, Development and reform, Land resources	Brief health reform proposal and discuss possible investment for PforR
8-25	Fujian	Sanming City	City Health and Family Planning, City Hospital, Shaxia County Hospital, Land Resources Bureau	Introduce Sanming City Health Reform Program
8-25	Fujian	Shaxian County	County Health and Family Planning Bureau	Introduce county health condition
8-26	Fujian	Sanming	Visit Sanming No. 1 Hospital	
8-26	Fujian	Sanming	Visit Sanming Medical Waste Treatment Center	

Date (2016)	Province	Location	Stakeholders	Activity
8-29	Anhui	Hefei	Provincial agencies, Health and Family Planning, Financial, Development and reform, Land resources	Brief health reform program and discuss possible investment for PforR
8-30	Anhui	Tianchang	City Health and Family Planning Bureau, City Hospital, Traditional Medicine Hospital, and Land Resources Bureau	Introduce Tianchang City Health Reform Program and discuss possible investments
8-31	Anhui	Tianchang	Visit Chajian Town Healthcare Center and meeting staff there	
8-31	Anhui	Tianchang	Meeting to affected villages by land loss for Tiankang Hospital	Understand land acquisition process for Tiankang Hospital
9-1	Anhui	Tianchang	Visit Chuzhou City Medical Waste Treatment Center	
9-1	Anhui	Tianchang	Visit Tianchang Civil Affair Bureau and interview with official there	To understand poverty condition, and measures for poverty alleviation
10-24	Fujian	Longyan City	Meeting with staff of Longyan City Health and Family Planning	Introduce Longyan Health care condition and discuss possible investments
10-24	Fujian	Changting County	Meeting Changting Health and Family Planning, County Hospital, and Land Resources Bureau	Introduce Changting Health Reform Program and discuss possible investments
10-25	Fujian	Changting County	Visit Datong and Hetien Town Healthcare Centers	Understand healthcare service in town and village
10-25	Fujian	Wuping County	Meeting Wuping Health and Family Planning, Wuping Women Hospital, and Land Resources Bureau	Introduce Health development plan and discuss possible investments
10-26	Fujian	Wuping County	Visit Zhongshan Town and Xiaba Township Healthcare Centers	Understand healthcare service in town and village

179. In order to share initial ESSA findings and confirm the adequacy of eligibility criteria for investment activities for the PforR, a brief consultation meeting was carried out with representatives of two provincial PTFs between November 22 and 24, 2016. The main focus of discussions was on the eligibility criteria proposed by the assessment team to be applied for PforR in two provinces.

180. From February 21 to 25, 2017, public consultation meetings were conducted in 6 venues in the Anhui and Fujian Provinces. The purposes of the multi-stakeholder consultation workshops were to: (a) introduce on the Environmental and Social Systems Assessment approach under the proposed Program for Results operation; (b) seek comments and feedback on the key findings and recommendations of the ESSA.

181. Prior to the public consultation meetings, the Chinese version of ESSA was distributed to potential participants and disclosed on the both Provincial Health and Family Planning Commission's websites (on February 17, 2017).

182. Three consultation workshops were held in each province, one at the provincial level, and the other two at city/county level, as presented in the Table 7-2 below.

Table 7-2. List of Public Consultation Meetings

Date	Province	Location
Feb. 22, 2017	Anhui	Fengyang County, Chuzhou City
Feb. 22, 2017		Bengbu City
Feb. 23, 2017		Hefei City
Feb. 24, 2017	Fujian	Fuzhou City
Feb. 24, 2017		Sha County, Sanming City
Feb. 25, 2017		Changting County, Longyan City

183. Participants included family planning and health commissions, patient representatives, NGOs, government agencies relevant to the Program such as land resources bureau, environmental protection bureau; healthcare facilities including municipal level, county level, township and village level; and medical waste management companies. Extensive discussions were seen during all the consultation meetings.

184. In all meetings, participants voiced strong support to the proposed PforR. The participants agreed that, overall, the ESSA report is of good quality; the review and analysis of domestic laws and regulations are comprehensive and well-organized; the key environmental and social issues identified are consistent with the reality in general; the assessment of institutional arrangement, capacity and performance is objective; the

recommendations made by the ESSA are pragmatic and achievable. More details are presented in Annex 6.

185. This version of ESSA was updated to reflect the public consultation inputs and disclosed locally and on the external website of the World Bank (on April 12, 2017).

8. Recommendations for the Program Environmental and Social Systems

186. Based on the assessment of the environmental and social management system applicable to the proposed PforR, it is concluded that China and the Fujian and Anhui Province have established a comprehensive sets of environmental and social management systems to address the environment, health and safety, as well as land acquisition and indigenous peoples concerns related to the proposed activities under the PforR Such systems are in line with the core principles and key planning elements as defined in the Bank Policy for PforR. The overall potential environmental and social risks of this PforR is rated as moderate, and can be effectively mitigated within the existing environmental and social management systems.

187. The assessment identified certain areas for improvement of the implementation of the environmental and social systems, which can be addressed through the implementation of the following recommendations:

188. ***Strengthening environmental, health and safety management capacity***. To ensure consistent and adequate EHS management capacity across all levels of healthcare facilities, it is necessary to design and implement protocols for regular training and capacity building of medical workers and HCFs, and ensure coordinated management, supervision and enforcement of EHS issues. These should include:

- Design and implement protocols for providing, replacing and decommissioning safety equipment to, medical workers and the hospital Infectious Disease Control Unit to ensure that they always have access to all necessary equipment in good operational condition.

- Design, implement protocols for periodic training program for hospital presidents, medical workers and the hospital Infectious Disease Control Unit to ensure adequate awareness and skills across all levels healthcare facilities on the proper management of medical waste management and radiation risk control.

- Develop and implement a protocol for regularly reviewing, maintaining, and updating the categorization method of medical wastes, internal management system for medical wastes, exposure control plan for infectious disease and radiation, and firefighting plan, with guidance and supervision from local Sanitation Supervision Station and Public Security Department.

- Ensure that a system is in place to periodically verify that local healthcare facilities and hospitals have adequate capacity of temporary medical solid storage chamber and the protective gear.

- Strengthen the supervision and enforcement capacity of responsible agencies to ensure adequate supervision of the chain of custody that covers whole medical wastes collection, transport and disposal across all administrative levels (village, township, county and municipality)> particularly attention should be given to the capacity of Environmental Protection Bureaus and Sanitation Supervision Stations to work on remote poor areas.

189. ***Improving Public Consultation and Information Disclosure.*** To enhance the effectiveness of existing domestic information disclosure and public participation requirements, the following are recommended

- Improve the public information disclosure system on the environmental compliance of medical waste medical waste handling and safety compliance of radiation risks control, by disclosing the emission monitoring results, waste generation and disposal, and inventory of medical radioactive equipment/sources through government websites and environmental bulletins.

- The draft EIAs of activities supported under the PforR, should be made available for public consultation through posting in publically accessible web portals and/or paper-copy distribution locally.

190. ***Enhancing land acquisition monitoring process.*** To ensure a consistent land acquisition monitoring process across all activities associated with upgrading and construction healthcare facilities, it is recommended to establish a standard registry procedure with the relevant evidence indicating full compliance with national laws and local regulations, as well as the protection of the interests of the affected people. Any land acquisition under this PforR should be reported in the progress report, including relevant evidence (land use certificates, compensation agreements, land price payments, and land lease agreements with affected parties) and due diligences by relevant local government agencies.

191. ***Enhancing Public Participation in Health Reform Implementation*****.** In order to increase social accountability and address grievance during health reform program, a public participation plan should be developed based on successful implementation of selected cities in two provinces, which defined basic steps, and measures to be taken so that same positive outcome could be achieved during scale-up implementation. This plan should include more proactive public participation, more transparent information disclosure, and more effective grievance procedures, so that most rural and urban residents in two provinces have better understanding of various reform measures under the PforR.

Annex 1 - List of Applicable Laws and Regulations

No.	Name
1	The Law on the prevention and control of infectious diseases (modified in 2014)
2	The Law of Prevention and Control of Radioactive Contamination (2003)
3	The Inventory for Categories of Medical Solid Waste
4	The Labor Law (2009)
5	The Medical waste management regulations (2003)
6	The regulation of biological safety of pathogenic micro-organism laboratory (2014)
7	The regulation of circulation of vaccines and vaccination (2005)
8	The regulation of AIDS (2006)
9	Regulations on the Safety and Protection of Radioactive Isotopes and radiation Equipment (2005)
10	Measures for the management of disinfection (modified in 2016)
11	Measures for Medical Wastes Management of Medical and Health Institutions (2003)
12	Administrative Punishment Measures for Medical Waste Management (2004)
13	Measures for the management of hospital infection (2006)
14	Administrative Measures for Prevention and Control of Tuberculosis (2013)
15	Regulation of disinfection technique in healthcare settings (WS/T 367-2012)
16	Hygienic standard for disinfection in hospitals (GB 15982-2012)
17	Specifications for Infectious diseases prevention and control of hygiene supervision work (2010)
18	Radiological diagnosis and treatment management stipulation (2006)
19	Method for Management of Occupational Health for Workers under Radioactive Environment (2016)
20	General Requirements for Laboratory Biosafety (GB19489-2008)
21	Water Pollutants Discharge Standard for Health care facilities (GB18466-2005)
22	The Basic Standard for Ionizing Radiation Protection and Radiation Sources Safety Standards （GB 18871—2002）
23	Requirements for radiological protection in medical X-ray diagnosis（GBZ 130-2013）
24	Specifications for Preparation of Assessment Report for Radiological Protection of

	Occupational Disease for Construction Projects （GBZ/T 181-2006）
25	Technical Specifications for Occupational Health Monitoring and Protection for Workers in Radioactive Environment（GBZ235-2011）
26	Pollution Control Standard for Hazardous Waste Incineration（GB18484-2014）;
27	Technical Specifications for Construction of Concentrated Incineration Facilities for medical Wastes （HJ/T177--2005）
28	Technical Specifications for Monitoring and Management of Concentrated Incineration Facilities Treating Medical Wastes, Pilot（HJ 516—2009）
29	Technical Specifications for Concentrated Facilities using High Temperature Steam for Treatment of Medical Wastes, pilot（HJ/T 276－2006）
30	Stipulations for standards and Warning Labeling for Special Packages and Containers for Medical Wastes, issued by MEP, 2003
31	Technical Specifications for Vehicles Transporting Medical Wastes, pilot（GB 19217—2003）
32	Notice for Implementation of Action Plan for Concentrated collection and Disposal of Medical Wastes in Small Health Care facilities in Fujian Province (2016)
33	Solid Waste Pollution Prevention and Control Law (2016)

Annex 2 - Assessment of Environmental and Social Systems based on the Bank Policy and Directive for PforRs

a. Promote environmental and social sustainability in the Program design; avoid, minimize, or mitigate adverse impacts, and promote informed decision-making relating to the Program's environmental and social impacts.		
Key Elements	**National and Provincial Systems**	**Key Findings**
Operate within an adequate legal and regulatory framework to guide environmental and social impact assessments at the program level.	China has developed an adequate legal framework for environmental, Health and Safety, and social impact assessment, backed by a set of comprehensive laws, regulations, technical guidelines and standards, which apply nationwide. Over the decades, it has gradually evolved into a comprehensive system that is generally consistent with the PforR. Overall, the legal framework of environmental management in China is fully consistent with the Bank PforR Directive. In the province of Fujian and Anhui, the provincial and municipal and local EPBs, health bureaus and labor bureaus have well-established institutional arrangements with qualified staff and technical expertise for managing the environmental and social impact assessment of construction project	Consistent.
Incorporate recognized elements of environmental and social assessment good practice, including: (i) early screening of potential impacts; (ii) consideration of strategic, technical, and site alternatives (including the "no action" alternative); (iii) explicit assessment of potential induced, cumulative, and transboundary impacts; (iv) identification of measures to mitigate adverse environmental or social impacts that cannot be	The Chinese EHS system has well-defined guidelines covering screening, alternative analysis, impact assessment, mitigation measures, management plan, and consultation. The relevant government authorities have been established with clear responsibilities for managing the review, clearance, examination and supervision, and grievance and redress of the activities. Overall, the legal framework of environmental management in China in this regard is fully consistent with the Bank PforR Directive.	Consistent. Given the nature, location and scope of the PforR, it may not involve the cumulative and transboundary impacts. As the PforR may only require the preparation of the EIA Form or EIA Registration Form, which are not

otherwise avoided or minimized; (v) clear articulation of institutional responsibilities and resources to support implementation of plans; and (vi) responsiveness and accountability through stakeholder consultation, timely dissemination of the PforR information, and responsive grievance redress measures.		required to be disclosed and gone through public consultation, at least one round of consultation and disclosure of information is suggested in the action of the ESSA.
b. Avoid, minimize, or mitigate adverse impacts on natural habitats and physical cultural resources resulting from the Program.		
Key Elements	**National and Provincial Systems**	**Key Findings**
Include appropriate measures for the early identification and screening of potentially important biodiversity and cultural resource areas.	The EIA guidelines provide detailed guidance on identification and screening of sensitive environmental and cultural resources, including survey of baseline environmental conditions in geology, surface water, wild life, forest, wetland, fishery, rare and endangered species, and nature reserves. Key sensitive areas such as rivers, reservoirs, nature reserves, wetland parks, forest parks, and scenic areas are identified for detailed survey and special assessment. Cultural resources are screened through consultation/approval of relevant authorities and field investigation. Overall, the legal framework of environmental management in China in this regard is fully consistent with the Bank PforR Policy and Directive.	Consistent. It is not expected that important biodiversity and cultural resource areas will be affected by the activities under this PforR.
Support and promote the protection, conservation, maintenance, and rehabilitation of natural habitats; avoid significant conversion or degradation of critical natural habitats; and, if avoiding the significant conversion of natural habitats is not technically feasible, measures to mitigate or offset the adverse impacts of the PforR	The Chinese environmental protection system emphasizes the protection, maintenance and rehabilitation of natural habitats. Avoiding such sensitive areas is the top priority of the EIA. Special assessment is mandatory and necessary mitigation or offset measures are to be developed in the environmental management plan if avoidance is not feasible. Overall, the legal framework of environmental management in China in	Consistent. It is not expected that the activities supported under the PforR will take place on sensitive environmental sites/areas.

activities are required.	this regard is fully consistent with the Bank PforR Directive.	
Take into account potential adverse effects on physical cultural property and provide adequate measures to avoid, minimize, or mitigate such effects.	The *Cultural Property Protection Law* provides adequate legal framework and procedures for protecting cultural property during the EA process. If any physical cultural resource is impacted, impacts must be assessed, and consultation and approval must be secured with the cultural property authority, and protection measures be included in the environmental management plan. Overall, the legal framework of environmental management in China in this regard is fully consistent with the Bank PforR Directive.	Consistent. It is not expected that the activities supported under the PforR will take place in areas with existing physical cultural resources.
c. Protect public and worker safety against the potential risks associated with: (i) construction and/or operations of facilities or other operational practices under the Program; (ii) exposure to toxic chemicals, hazardous wastes, and other dangerous materials under the Program; and (iii) reconstruction or rehabilitation of infrastructure located in areas prone to natural hazards.		
Key Elements	**National and Provincial Systems**	**Key Findings**
Promote adequate community, individual, and worker safety through the safe design, construction, operation, and maintenance of physical infrastructure; or, in carrying out activities that may be dependent on such infrastructure, incorporate safety measures, inspections, or remedial works as appropriate.	China has established a comprehensive management and supervision system for work safety. This system ensures the screening of safety issues and occupation hazards, assessment of work safety and occupational diseases hazard during project preparation, design and construction completion acceptance of work safety and health facilities, and supervision during operation. Overall, the legal framework of environmental management in China in this regard is fully consistent with the Bank PforR Policy and Directive. The two provinces of Fujian and Anhui have established a permit system for procurement of use of radioactive equipment	Consistent. The main effects on community, individual and worker safety of the PforR are expected to be radiation and medical wastes. These effects can be readily identified and mitigated in the two provinces of Anhui and Fujian.

	or materials in health sector, and transport and disposal of medical wastes.	
Promote the use of recognized good practice in the production, management, storage, transport, and disposal of hazardous materials generated under the PforR; promote the use of integrated pest management practices to manage or reduce pests or diseases vectors; and provide training for workers involved in the production, procurement, storage, transport, use, and disposal of hazardous chemicals in accordance with the relevant international guidelines and conventions.	The legal system in China provides a comprehensive framework in managing hazardous materials, which requires special permit systems for production, storage and sale of dangerous chemicals. It requires the adoption of good and compliance management practices. It also enforces mandatory certification of workers involved in handling dangerous chemicals. Overall, the legal framework of environmental management in China in this regard is fully consistent with the Bank PforR Directive The two provinces of Anhui and Fujian issued their provincial regulations on Methods for Managing Medical Wastes, which require the clear institutional arrangement, establishment of disposal centers/companies for each county, protection and training of workers.	Consistent. The activities supported under this PforR will involve the internal management of medical wastes, e.g. sorting, packing, labeling, storage, within the health care facilities, and the transportation and disposal of medical wastes by the medical waste disposal centers/companies. The institutional capacity at the county level and below should be strengthened to ensure the effective and safe waste management. It is not expected that the activities supported under this PforR will involve any relevant production, storage and sale of dangerous chemicals or pesticide.
Include adequate measures to avoid, minimize, or mitigate community, individual, and worker risks when the PforR activities are located in areas prone to natural hazards such as floods, hurricanes, earthquakes, or other severe weather or climate events.	The EIA and work safety systems cover the environmental and work related risk assessment, and require necessary measures to be incorporated into the project design and implementation. In addition, China has established other risk assessment systems for projects that are in areas prone to flood and natural hazards (e.g. geo-hazard, earthquake) as part of project approval procedures. Overall, the legal framework of environmental management in China in this regard is fully consistent with the Bank PforR Policy and Directive.	Consistent. The PforR will not be located in any areas prone to natural hazards.

d. Manage land acquisition and loss of access to natural resources in a way that avoids or minimizes displacement, and assist the affected people in improving or, at the minimum, restoring their livelihoods and living standards.		
Key Elements	**National and Provincial Systems**	**Key Findings**
Avoid or minimize land acquisition and related adverse impacts; identify and address economic and social impacts caused by land acquisition or loss of access to natural resources, including those affecting people lacking full legal rights to resources they use or occupy.	The effort to avoid or minimize land acquisition is achieved through both technical design and the land department review process, including preliminary verification. The main focus of preliminary verification is to ensure compliance with regional and local land use planning and safeguard primary farmland. Where it is not feasible to avoid land acquisition, strict procedures for approving land acquisition will be adopted for investment projects to ensure the original living standards of the affected people are not lowered and their long-term livelihoods are guaranteed. Under the existing land acquisition procedures, the potential social and economic impacts caused by land acquisition are addressed by engaging affected villages in the land impact survey, confirming surveyed outcomes, conducting public hearings, establishing unified compensation rates by provincial government, and providing employment opportunities and social security coverage for land loss farmers. For those affected people who lack full legal rights to assets or resources they use or occupy, existing laws or regulations do not provide clear entitlements. However, in the actual implementation, certain level of compensation is often provided following negotiation with affected parties. Information related to land acquisition is disclosed and disseminated in a timely and effective manner through public media.	Consistent. The current legal framework on land acquisition in China is well established to ensure affected people are assisted in improving or at least restoring their livelihood and living standards. The economic and social impacts caused by land acquisition or loss of access to natural resources are fully investigated and compensated.
Provide compensation sufficient to purchase	In both two provinces, land compensation is based on	Consistent.

replacement assets of equivalent value and to meet any necessary transitional expenses before taking land or restricting access.	comprehensive prices and unified annual output value covering all counties, which is adjusted every 2-3 years. For compensation to other attachments, qualified evaluation agency is often selected to appraise attachments, develop compensation plans and sign final compensation agreements with affected households. For temporarily occupied land, direct negotiation is often taken place with affected people in determining amount and duration and providing compensation directly to affected people.	Land compensation is adequate for APs livelihood restoration. Replacement price is used for housing cash compensation.
Provide supplemental livelihood improvement or restoration measures if taking of land causes loss of income-generating opportunity (e.g., loss of crop production or employment).	According to No. 28 degree of state council, local authorities are requested to pay special attention to rehabilitation for land loss farmers by offering a range of rehabilitation measures, such as replacement farmland, employment opportunities, skill training, and social security, and providing benefiting sharing from project land.	Consistent. Multiple rehabilitation approaches are used during implementation.
Restore or replace public infrastructure and community services that may be adversely affected by the PforR.	Under current land acquisition system, the project sponsor is required to pay compensation for all affected assets including both privately owned attachments and public infrastructure and community services. In most cases, affected public infrastructures and community services will be restored by relevant government agencies.	Consistent.
e. Give due consideration to the cultural appropriateness of, and equitable access to, Program benefits, giving special attention to the rights and interests of the Indigenous Peoples and to the needs or concerns of vulnerable groups.		
Key Elements	**National and Provincial Systems**	**Key Findings**
Undertake free, prior, and informed consultations if the Indigenous Peoples are potentially affected (positively or negatively) to determine whether there is broad	This key element is consistent with provision in the national Constitution, which stipulated that all nationalities in China are equal. The state protects the lawful rights and interests of the minority nationalities and upholds and develops a relationship of equality, unity and mutual assistance among all of China's	Consistent. The activities to be supported under the PforR may involve ethnic minorities are voluntary. The issues

community support for the PforR activities.	nationalities. Regional autonomy is practiced in areas where people of minority nationalities live in concentrated communities; in these areas organs of self-government are established to exercise the power of autonomy.	to be addressed under the PforR are of adequate communication and coverage to ensure that those communities have equal opportunity to participate in those activities.
Ensure that the Indigenous Peoples can participate in devising opportunities to benefit from exploitation of customary resources or indigenous knowledge, the latter (Indigenous knowledge) to include the consent of the Indigenous Peoples.	Although the current legal framework supports the lawful rights and interests of the minority nationalities in the country, there no specific policy requirement for any development project to carry out prior, free and informed consultation with minority communities, and to obtain broad support. Nevertheless, minority communities like other local communities will be consulted and obtained their support during EIA and land acquisition process for planning various healthcare investment activities. The local government agencies will review and approve relevant investment projects on behalf of local population and communities.	Consistent. There is an efficient organizational structure; however, the Leading Group does not include representatives from the provincial department and county bureaus of ethnic and religious affairs. This should be addressed during the implementation of the PforR.
Give attention to groups vulnerable to hardship or disadvantage, including the poor, the disabled, women and children, the elderly, or marginalized ethnic groups; and, if necessary, take special measures to promote equitable access to the PforR benefits.	On the issue of giving special attention to vulnerable group including the poor, disabled, women, and the elderly, there is established system in China for local government to provide support to urban and rural low income households, including various vulnerable groups. Such support including cash income to meet minimum living allowance for the group, and in kind support on different aspects of daily expenses, such as reduction or waive of electricity tariff, subsidy on medical insurance and expenditure and so on. The proposed HCF improvement projects will benefit general public with better access and quality healthcare conditions and generated temporary employment opportunities in the project area.	Consistent. Vulnerable group is often supported by the existing safety net in both rural and urban areas, concerning both public health care provision and financial support on medical expenditure.

Annex 3 - Environmental and Social Risk Screening Worksheet

Risk	Assessment
Associated or Likely Social and Environmental Effects	This PforR will not cause potential loss or conversion of natural habitats by early screening to avoid natural habitats; This PforR may cause potential pollution or other project externalities, but of moderate or minimal risk. As most potential works are within existing HCFs, incremental effects are to be moderate or small and can be effectively mitigated by the existing system of the HCF for environmental management which will be further enhanced through the actions agreed; This PforR will cause the change of land use by acquisition of small area of lands, but will not likely cause large number of house demolition and displacement; This PforR will not lead to significant changes of access to resources; Indigenous people defined by the Bank are not likely affected by activities under PforR.
Environmental and Social Context	This PforR will be located in urban or rural environmental settings without posing special challenges to natural environment. This will be assured by early screening of site selection to avoid ecological sensitive areas: The PforR will not involve any investment in or near sensitive habitats by early screening to avoid natural habitats, The key effects screened include the radiation on communities and traffic safety, through early screening, alternative comparison and consultation the potential impacts can be avoided or minimized or mitigated; The PforR i are not likely to be located in social sensitive areas such as centers of indigenous people, and vulnerable groups, or in conflict zones.
Program Strategy and Sustainability	This PforR fits well into with the health care reform strategy of China's government which recognizes the health care reform as a top priority for urgent actions and long term efforts; The PforR will ensure the environmental and social sustainability under the context of governments' continuous investment on the health reform actions. This PforR is an important step towards supporting the government's sustainable development goals for social, economic and environmental development; There are little roadblocks to ensuring the environmental and social sustainability of the PforR after implementation. The government of China is placing more emphasis on environmental protection and human, improving institutional arrangements, and providing more resources to enhance government institutional capacity.
Institutional Complexity and Capacity	This PforR will involve multiple jurisdictions for environmental, social, and health and safety management. Various documents need to be prepared by the investment proponents for the various aspects of EHS and social issues. These documents need to be reviewed and approved by different government organizations and enforcement of the laws during the construction and operation of projects also involves different government and non-government organizations. The relevant institutions regarding the environmental and social management have been established and their accountabilities and duties are clearly

Risk	Assessment
	designated. The environmental and social concerns will be effectively addressed by the procedure of review and clearance, supervision and examination, and monitoring by the government organizations, as well as internal system of the HCF and disposal centers. The institutional capacities will be adequate to manage the environmental and social risk associated with the PforR.
Reputation and Political Risk Context	The PforR does not appear to have high political risk, and the sector is not known to be controversial. As the PforR will involve investments in procurement of health equipment and construction of some health facilities, environmental and social issues are expected to present reputational risks to the World Bank, causing some political risk, particularly if there is uncontrolled release of medical wastes or radiation to the communities and small scale land acquisition. However, the EHS and social system of China will assure the early screening of the environmental and social issues, and alternatives will be developed to avoid or minimize such risks. The institutional arrangement for the management of such risks has been established and their capacity and performance will be further enhanced, particularly at the HCF of county level or lower level. The whole cycle of the medical waste management is put under the scrutiny of the government through the procedure of review and clearance, supervision and examination and monitoring, and guidance. Thus the reputational and political risk is moderate.
Overall Assessment:	The proposed activities under this PforR, are suitable to be supported according to the World Bank PforR Policy, and Directive. The environmental risk is moderate and can be effectively managed under the current EHS and environment system; The social risk is moderate and can be effectively managed under current social system.

Annex 4 - Review of Land Acquisition for Selected HCFs in Fujian and Anhui

(i) Background

In order to have better understanding of potential land acquisition impacts for building new HCFs and upgrading existing HCFs, under the assistance of Fujian and Anhui Provincial Public Health and Family Planning Commissions, the task team visited a range of HCFs in Sanming and Longyan Cities in Fujian and Tianchang City in Anhui Province. In Fujian the visited HCFs include Sanming No.1 Hospital in Sanming City; Tingzhou Hospital and Datong and Hetian Township Health Care Centers in Changting County, Longyan City; Wuping County Women and Children Hospital, and Shifang and Xiaba Township Health Care Centers in Wuping County, Longyan City. In Anhui Province, visited health care facilities include Tianchang Chinese traditional Medicine Hospital and Chajian Township Health Center in Tianchang City. Based on discussions with above stakeholders and field visits to the above HCFs and medical waste disposal centers, the task team was able to draw preliminary conclusions on the performance of social management system in dealing with land acquisition impacts:

(ii) List of selected HCF projects and basic facts concerning land acquisition

Table 1 provide a status of land acquisition among selected HCFs visited in two provinces. According to the table, the amount of land acquisition varied among different health care facilities. Among county level hospitals, it ranged from only 1.38 ha for Wuping Women and Children Hospital in Wuping County, Longyan City to 20 ha for Tingzhou Hospital in Changting County, Longyan City. Among health care facilities, the total land requirement from only 0.13 ha of expansion for Chajian Town in Tianchang City to 0.8 ha of new construction for Zhongshan Town Health Care Center in Wuping County, Longyan City.

Table 1: Status of Land Acquisition in Selected HCFs in Anhui and Fujian

List of FCHs	County	City	Total Land Area (ha)	Rural Land (ha)	Number of Affected Households	Any House Demolition
Chinese Hospital	Tianchang	Chuzhou	7.20	7.20	n.a.	No
Tiankang Hospital	Tianchang	Chuzhou	7.35	4.99	38	No
Wuping Women Hospital	Wuping	Longyan	1.38	1.34	40	No
Tingzhou Hospital	Changting	Longyan	20.00	15.33	50	Yes
Chajian Town *	Tianchang	Chuzhou	0.13 (0.91)		7	Yes
Hetian Town Healthcare *	Changting	Longyan	0.62 (1.6)	0.62	13	No
Xiaba Town Healthcare	Wuping	Longyan	0.21	0.19	6	No
ZhongshanTown Healthcare	Wuping	Longyan	0.797	0.797	50	No

Note: The marked two township health care centers involved expansion instead of new construction. The figures in ( ) are total existing land areas.

(iii) Land acquisition procedures

Among visited HCFs, regardless of their sizes, there was no need of acquiring new land areas, or those of them requiring new land acquisition had followed procedures and steps established in the country. For example, among all selected HCFs, except for Chajian Town Health Care Center, which involves expansion within existing built-up area, all other construction of HCFs in two provinces, including expansion of Hetian Town Health Care Center, they all obtained land preliminary examination documents from relevant land resources bureaus. In addition, all of them had obtained land acquisition

approval documents from relevant county or city land resources bureaus for the concerned land acquisition.

(iv) Compensation Policies and Delivery

Following the approval of land acquisition, the compensation rates adopted for these HCFS were all based on compensation rates set by two provinces, ranging from CNY33,800 per mu for Zhongshan Town Health Care Center to CNY49,400 per mu for Wuping Women Hospital in Wuping County, Longyan City, to CNY120,000 per mu for Tiankang and Tianchang Chinese Medicine Hospital. The relatively high compensation rates in Tianchang City is because the total amount of compensation includes CNY19,800 per mu of cash compensation, and rest of them was made of value of commercial spaces distributed to the affected people based on development of real estate on the allocation of land area to affected village. All compensations including land compensation and compensation for various attachments were delivered to affected people with no remaining problem reported.

(v) Consultation and Grievance Procedures

According to the discussions with project sponsors from selected HCFs, the process of land acquisition for the selected PCFs were quite transparent. The affected people were provided opportunities to voice their concern on the proposed compensation policies and rehabilitation measures for the acquired land areas. Taking Wuping County Women and Children Hospital as an example, while the compensation for land areas based on the rate issued by Fujian Province was agreed with affected villagers with no issues, the compensation on attachments become a challenge. This is because the acquired land areas are part of leased land areas operating by one farm cooperatives, which is used by planting grape and other high yield economic crops. After extensive discussions and consultation with grape farmers in other cities, the compensation rate was finally agreed by affected parties totaling about CNY1.16 million.

Annex 5 - A Summary of SARS Crisis (2003) and the Development of Medical Waste and Medical Radiation Management in China

The Severe Acute Respiratory Syndrome （SARS）took place in early 2003 in China, until WHO officially announced removal the mainland China from the affected areas on June 24, 2003 resulted in 5327 reported infected cases in total (among which about 1,000 were health care staff) with the death toll being 349.

Review of the SARS event in mainland China revealed some lessons on the management system for medical wastes, which is thought to be one of the reasons for the quick and wide spread of the SARS when the system for medical waste management was weak; and that the spreading was effectively controlled when medical wastes management was strictly implemented. It was recognized that a comprehensive system for medical waste management should be established, including legal system regarding the laws, regulations, technical specifications and standards, as well as the collection, transportation and disposal system and capacity building.

The keys lessons learned from the 2003 SARS crisis regarding the medical waste management are the following:

Lack of established capacity of safe disposal of medical solid waste: the general estimation on the total amount of medical solid waste for 2003 ranged from 1880 t/d to 2800 t/d with 1380-2060 t/d produced by the health care facilities above county level. However, the established capacity of safe disposal was only up to 130 t/d, and about only 10 cities possessed the established system for medical waste disposal. The large cities, like Beijing and Shanghai, even did not start the construction of medical waste disposal centers. The common means used that time involved the sorting and recycling, disposal together with general domestic wastes, and burned in boilers or small incinerators within the hospitals. The eruption of the SARS led to the enormous increase of infectious wastes, and the wastes could not be safely disposed of by the system for medical waste disposal. In some cities severely affected by the SARS, e.g. Beijing, the infectious wastes had to be transported to the crematory for disposal, and Beijing invested millions of dollars to procure temporary facilities for waste incineration.

Lack of effective regulations, technical specifications, standards and enforcement for medical waste management: when the SARS broke out in mainland China, the main regulations, technical specifications and standards for medical waste management were not developed or enacted, or were not designed to effectively control the unexpected events in terms of quantity and quality of wastes. For example, the medical wastewater discharge standards, and design specifications for discharging into the municipal sewers, only required pre-treatment and disinfection. This approach did not ensure the effective disinfection of the medical wastewater when the SS is high and the flow rate largely fluctuates. In addition, the local EPBs played a weak role in the law enforcement for the medical waste management, the hospitals failed to seek effective guidance on the medical waste management from the EPBs.

The lessons of the SARS greatly incentivized the development of the system for medical waste management in the mainland China. Since 2003, China government made great efforts and investments on the establishment of the effective system for medical waste management in line with the Basel Convention. On 19 Jan. 2004, the State Council approved the implementation of the Planning for Construction of Hazardous Wastes and Medical Wastes Disposal Facilities in the county, which set a target for three years to invest total RMB 14.92 billion to achieve the safe storage and disposal of hazardous wastes, medical wastes and radioactive wastes. According to the planning, 300 medical waste disposal centers with a combined capacity of 2,080 t/d to be established; this planning also sets out the technical requirements for the transportation vehicles, technical roadmap, incinerator, flue gas treatment, landfill, and system arrangement.

Along with the planning, a series of regulations, specifications and standards have been enacted or updated, including but not limited to:

- Regulations for Management of Medical Wastes (2003);
- Measures for Management of Medical Waste of Health Care Facilities (2003);
- Inventory of Categories for Medical Wastes (2003);
- Technical Specifications for Concentrated Disposal of Medical Wastes (2003);
- Stipulations for alarming signs, and standards for packages and containers for medical wastes (2003);
- Technical Specifications for Construction of Concentrated Incineration Facilities for Medical Wastes (2004), etc.

This event of SARS also stimulated the government's awareness of accountability and responsibility for law enforcement and disclosure of information regarding the infectious disease, and has established the preliminary alarming system for infectious disease for the whole country.

Annex 6 - Summary of Public Consultation Meetings for ESSA

Introduction

Formal consultation meetings of the ESSA were conducted in 6 venues in the Anhui and Fujian Provinces during Feb 21-25, 2017.

In both provinces, three consultation meetings were held; one at the provincial level, and the other two at city/county level. The purposes of the multi-stakeholder consultation workshops were to: (a) introduce on the Environmental and Social Systems Assessment approach under the proposed Program for Results operation; (b) seek comments and feedback on the key findings and recommendations of the ESSA.

Meeting agenda included: i) Bank team makes presentation on the PforR, including the Program proposed for financing; the scope, the thematic areas of coverage, expected results; ii) a presentation on P4R ESSA approach, key principles and requirements; iii) a presentation on social aspects of the ESSA; iv) a presentation on environmental aspects of the ESSA; v) Discussion & feedback.

Prior to the public consultation meetings, the Chinese version of the ESSA was distributed to potential participants and disclosed on the both Provincial Health and Family Planning Commissions'websites (on February 17, 2017).

Participants to the workshops included family planning and health commissions, patient representatives, NGOs, government agencies relevant to the Program such as land resources bureau, environmental protection bureau; healthcare facilities including municipal level, county level, township and village level ones; and medical waste management companies. Extensive discussions were seen during all the consultation workshops. Some participants provided additional details or updated information for the ESSA. The Bank team provided feedback to the participants as necessary.

Summary of key comments of the consultation workshops

In all workshops, participants voiced strong support to the Program. The participants agreed that, overall, the ESSA report is of good quality; the review and analysis of domestic laws and regulations are comprehensive and well-organized; the key environmental and social issues identified are consistent with the reality in general; the assessment of institutional arrangement, capacity and performance is objective; the recommendations made by the ESSA are pragmatic and achievable.

Participants suggested that the following aspects of the ESSA could be updated or revised.

- Almost in all consultation workshops, EPB officials advised that the ongoing reform of EIA review authority and procedure could be reflected in the ESSA;
- In both provinces, health and family planning officials and hospital management expert provided details regarding radiation facilities and radioactive waste management, and suggested that while in general they agree radiation risk should receive adequate attention, the radiation risk does not seem to be high because it is under stringent regulation and inspection, and lower level of healthcare facilities do not operate such facilities. The decommissioning of retired radiation facilities follows established stringent procedures as well.
- With regard to the ESSA recommendation of "Develop an information disclosure system to the public on the medical waste collection, transport and disposal including decommissioned radiation equipment and radioactive wastes management." In both provinces, all responded participants indicated that under existing regulation, disclosure of emission compliance information of medical waste disposal facilities is required and met.

General information on the volume of medical waste generation and transport is publically available through certain channels such as annual environmental information bulletin. Inventory and information of in-use radiation medical facilities are publically available at provincial EPB's website. Nevertheless, they questioned the necessity and value of disclosing detailed medical waste generation and transport information, for example, of each healthcare facility, because there is no such regulatory requirement, the public who are interested are allowed to access such information following domestic administrative regulation, and existing inspection mechanism are effective in managing this issue. Likewise, disclosing information about decommissioned radiation facility is not considered a significant risk, hence it is not recommended to disclose such information to the public.

- Regarding the land acquisition and resettlement issues, there is no detailed plan on township hospital expansions. Land acquisition for city/county level of hospital is expected less than 200 mu. The invited municipal and county land departments presented that there are strict national land law, regulations, as well as provincial and municipal regulations, to guide land acquisition and related resettlement issues, including: (i) reviewing to the hospital locations to minimize the amount of the land from villages; (ii) hospital feasibility study to be reviewed by land departments if land is needed and the proposed hospital will be located into urban planned area where the land is owned by the state government; (iii) information disclosure of the land acquisition to public and the affected families.
- The process to deal with land acquisition includes strict procedures to review the application of the land acquisition, as well as social insurance and training for career development aiming farmers' livelihood restoration.

Next steps

The comments of the consultation meetings were incorporated into the ESSA as appropriate. The revised ESSA will be disclosed on the external website of the World Bank, on the both Provincial Health and Family Planning Commissions' websites, and on the Center for Project Supervision and Management of the National Health and Family Planning Commission's websites.

Consultation Venue

Anhui Province

Fengyang County, Chuzhou City, Feb 22, 2017

Bengbu City, Jan 22, 2017

Hefei City, Feb 23, 2017

Fujian Province

Fuzhou City, Feb 24, 2017

Sha County, Sanming City, Feb 24, 2017

Changting County, Longyan City, Feb 25, 2017

Participants

Name	Work unit	Title
Fengyang County		
Huang Jiuping	Chuzhou Health Bureau	Vice director
Wu Wenren	Chuzhou EPB	
Sun Zhongmin	Land resource Bureau of Chuzhou	Division chief
Song Guanghui	Chuzhou Health Bureau	Division chief
Xiao Jigen	Fengyang County Government	Vice County magistrate
Fang Guangqian	Fengyang County Health Bureau	Director
Gao Ge	Fengyang County Health Bureau	Vice Director
Liu Hongjin	Fengyang County Health Bureau	
Xu Jing	Fengyang County Red Cross Association	Vice president
Fu Jirong	Fengyang County People's Hospital	Vice President
Xu Jun	Fucheng Township Health Center	Vice president
Xue Yuli	Village Clinic of Fucheng Town	
Guo Hui	Fengyang County EPB	Division chief
Zhang Yulei	Fengyang Land Resource Bureau	
Li Zhimin	Patient	
Caizheng	Patient	
Bengbu City		
Liu Xuejie	Bengbu Health Bureau	Director
Liu Zhijun	Bengbu Health Bureau	Vice Director
Chen Yun	Bengbu EPB	Vice Director
Zuo Zhiyong	Solid Waste Center of Bengbu EPB	Director
Chen Wei	Land Resource Bureau	Planning Division Chief
Zhai Hongbin	Bengbu Health Bureau	Planning division chief
Yang Donglin	Bengbu Health Bureau	Health administration division chief
Zhang Jingfu	Bengbu Health Bureau	Finance division chief

Name	Work unit	Title
Li Jian	Bengbu No. 2 Hospital	Vice president
Pang Tao	Bengbu No. 3 Hospital	Health affairs division Chief
Wang Chuanyi	Health reform Office	Division chief
Xu Hui	Bengbu No. 3 Hospital	Health Specialist
Jia Yuqin	Bengbu Health Association	General Sectary
Shan Ming	Guzhen County Health Bureau	Director
Tian Ying	Guzhen County Health Bureau	Vise Director
Zhang Hu	Guzhen County Land Resource Bureai	Vice director
Xie Meijuan	Guzhen County EPB	Chairman of Labors' Association
Ma Jiazhi	Chengguan Township Health Center of Guzhen County	President
Wang Jing	Tianzhuang Village Clinic	Doctor
Li Chunjing	Patient	
Zhao Peilin	Patient	
Shen Yinlong	Patient	
Hefei City		
Xie Ruijin	Provincial Health Reform Office	Vice director
Cheng Kun	Soil management department of provincial EPB	Senior engineer
Li Ming	Land use department of provincial land resource bureau	Vice director
Ma Yulong	Laws department of provincial health bureau	Vice director
Wang Yao	Supervision department of provincial health bureau	Vice director
Huang Liqin	Laws department of provincial health bureau	Vice director
Lu Chao	No. 2 Affiliated Hospital of Anhui Medical University	President
Chen Quansheng	Health Supervision Division of provincial sanitation supervision bureau	Division chief
Ji Liang	Infectious disease and Chinese medicine Supervision Division of provincial sanitation supervision bureau	Vice chief

Name	Work unit	Title
Zhu Xia	Integration department of provincial Family Plan Association	Director
Chen Jindong	Diabetes Association of provincial Chinese Medicine Hospital	Expert
Fuzhou City		
Lin Zaide	Provincial Health Bureau	
Tang XIaoming	Provincial Health Bureau	
Representative	Health Administration Department of Provincial Health Bureau	
Representative	Secretariat of Provincial Health Bureau	
Representative	Provincial Land Resource Bureau	
Representative	Provincial EPB	
Representative	Provincial Women and Children Protection Association	
Sha County		
Zhang Yuanming	Sanming Municipal Government	Vice Mayer
Bao ZHubin		Health Reform Consultant
Yu Xiuqin	Sanming Health Bureau	Vice Director
Rao Guangjin	Land use division of Sanming Land Resource Bureau	Chief
Yue Qingjiang	Environmental Supervision and Examination Team of Sanming EPB	
Yang Weiping	Planning and finance division of Sanming Health Bureau	Chief
Ye Tingkui	Sanming Health Bureau	
Li Peng	PMO of Sanming Health Bureau	
Jiang Zuotai	PMO of Sanming Health Bureau	
Lai Chaohong	PMO of Sanming Health Bureau	
Chen Jiahuang	Sanming Lvzhou Environmental Technical CO. Ltd.	
Guo Huixian	Sha County Government	Vice magistrate
Gong Qiuming	Sha County health bureau	Director

Name	Work unit	Title
Luo Yushuang	Sha County health bureau	Party secretary
Wang Fengchun	Sha County health bureau	Vice director
Pan Shengtu	Health Reform division of Sha County health bureau	Chief
Chen Honglong	Environmental Supervision and Examination Team of Sha County EPB	Leader
Zheng Shiliang	Sha County Land Resource Bureau	Vice director
Jiang Yuying	Sha County Women's Association	Director
Wang Longping	Sha County Hospital	vice president
Chen Guihua	Sha County Chinese Medicine Hospital	Vice president
Yang Lanqing	Workers' Association of Sha County Hospital	
Liu Jinzhang	Workers' Association of Sha County Chinese Medicine Hospital	
Tong Lili	Workers' Association of Sha County Chinese Medicine Hospital	
Wu Furong	Gaoqiao Township Health Center	President
Lin Shuiqing	Xishan Village Clinic	Leader
3 patients		
Changting County		
Huang Wanjjin	Longyan Municipal EPB	Vice director
Zhang Jian	Longyan Municipal Land Resource Bureau	
Yi Xiaojun	Longyan Health Bureau	Vice director
Wu hao	Changting County Government	Vice magistrate
Zhong Changren	Finance division of Longyan Health Bureau	Chief
Lan Jinkai	PMO of Longyan Health Bureau	Leader
Chen Jianglin	Health administration division of Longyan Health Bureau	Chief
Zhong Kuilin	Health reform Office of Longyan Health Bureau	Chief
Wu Shengfeng	Changting County Health Bureau	Director

Name	Work unit	Title
Tu Zhiliang	Changting County Health Bureau	Vice Director
Liao Haiquan	Changting County Health Bureau	Vice Director
Qiu Daozun	Changting County Health Bureau	Vice Director
Yan Chunhui	PMO of Changting Health Bureau	Director
Dai Hong	Planning and finance division of Changting Health Bureau	Chief
Qiu Tianrong	Health Administration Division of Changting Health Bureau	Chief
Ma Honglin	Disease Control division of Changting Health Bureau	Chief
Zhu Guangying	Changting land resource Bureau	
Hu Bing	Changting EPB	Vice director
Huang Meiling	Women's Association of Changting County	Chairman
Zeng Xianqing	Changting Tingzhou Hospital	President
Dai Qiulin	Xinqiao Health Center	President
Liao Honglian	Liaojia Village Clinic	Leader
Mr. Huang	Lvzhou Environmental Company	
Zhang Qiong	Patient	
Lai Chunshan	Patient	
Zhang Xian	Patient	

Bank ESSA Consultation Team

Shuo Zhang, Task Team Leader/Senior Health Specialist

Mauricio Vieira, Sr. Social Development Specialist

Zhefu Liu, Sr. Social Development Specialist

Ning Yang, Sr. Environmental Engineer

Yongli Wang, Environmental Consultant

Rui Liu, Health Specialist

Xu Jing, Interpreter