



# Technical Assistance Consultant's Report

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Project Number: 46047-001  
October 2013

## People's Republic of China: Guangxi Nanning Vocational Education Development Project (Financed by the Technical Assistance Special Fund)

### Volume 1

Prepared by the consultants of TA 8158-PRC: Guangxi Nanning Vocational Education Development Project in the People's Republic of China

For the Nanning TVET Project Office, Nanning Health School, and Nanning No. 4 Vocational & Technique School

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This report was prepared by Training and Technology Transfer New Zealand in association with Consia Consultants, Denmark and HJI Group, PRC

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## I. KNOWLEDGE SUMMARY

The purpose of the Guangxi Nanning Technical Vocational Education Development Project is to improve the quality of education in TVET sub-sector through the support of two TVET institutions: the Nanning Health School (NNHS) and Nanning No 4 Vocational School (NNVS) to deliver focused market-oriented training that equips students with improved skills and qualifications required by the society and the labor market.

The project is the second ADB-financed lending project for TVET in the PRC, and is envisaged to play a demonstration role for the development of TVET for social services in the PRC and other countries. The lack of a skilled labor force for services, such as kindergarten teaching and nursing is a limiting factor for the PRC's social and economic growth. The involvement of ADB in the TVET sector is convincingly warranted. The proposed project is in line with the ADB's PRC country partnership strategy, 2011–2015,<sup>1</sup> and supports ADB's education policy and education sector strategies. It supports the PRC's Twelfth Five-Year Plan, 2011–2015, which prioritizes developing high-quality human resources, public sector service, and accelerating educational reform. The project will contribute to creating a qualified labor force and improve access to social services, and has the following special features for replication within GZAR and in other provinces of the PRC

The preparation of the PPTA is based on (i) a review of the national and provincial TVET policies, plans and activities, (ii) a situational analysis of the two project schools within this context, and (iii) design of proposed project to address shortcomings and pursue opportunities to increase the quality of education in the TVET sub-sector.

Cross cutting issues of gender, language, and ethnic identity, poverty and social exclusion safeguarding of indigenous peoples welfare and care for the environment are incorporated. Due diligence has been undertaken for economic and financial management, and procurement, gender and social dimensions, the environment, resettlement and indigenous peoples.

To address challenges for kindergarten teacher-training at Nanning No. 4 Vocational Secondary School (NVTs) and nurse training at Nanning Health School (NHS) the project will (i) improve the quality of preschool teacher and nurse training curriculum, teaching-learning methods, assessment, and content; (ii) improve the quality of educational leadership and management, including human resource development; (iii) improve training of teaching staff to meet the new educational quality requirements in kindergarten teacher and nurse education; (iv) improve cooperation between NVTs and kindergartens for preschool teacher-training, and between NHS and healthcare employers for nurse training; (v) create national and international partnerships with leading institutions; (vi) establish kindergarten and rural health training bases and; (vii) construct new facilities and provide new equipment for NHS and NVTs.

The project would provide training and project implementation support, improve monitoring and evaluation to capture lessons from project activities and disseminate experiences produced.

An estimated 125 person months (29 international and 96 national) of consulting services are required to facilitate effective project management support and implementation, and to strengthen the quality and management of TVET in the two project schools and Nanning generally. In addition to the above contracts there is

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<sup>1</sup> ADB. 2012. *Country Partnership Strategy: People's Republic of China*, 2011–2015. Manila.

an estimated \$1.45 million of capacity building expenditure (including Schools Training of 660,000 and PMO and XIDC training or 170,000) incorporated into the project design for which the optimum procurement method cannot be determined until more detailed plans are drawn up for the activities concerned.

The proposed project is estimated to cost \$102,686.08 inclusive of taxes and duties, physical and price contingencies, and financial charges during implementation. The proposed Guangxi Nanning Vocational Education Development Project consists of a \$50 million ADB loan and \$52,686.08 million counterpart funding from the Government of PRC.

The Project will be managed by three implementing agencies. The project schools, i.e., NHS and NVTs, as well as the XIDC will be the implementing agencies. XIDC is a state-owned enterprise in Nanning which is administered by the Xiangsihu Development Zone Committee. XIDC has extensive experience in managing ADB and World Bank projects. NHS and NVTs will each set up an implementing unit to coordinate the preparation and implementation of subproject components. The implementing units will be fully staffed with technical experts and administrators in charge of school reform, procurement, financial management, disbursement, monitoring, evaluation and coordination

The design and monitoring framework (DMF) for the project has been agreed between the Asian Development Bank (ADB), Nanning Municipal Government (NMG), Nanning Education Bureau, Nanning Health Bureau, Nanning Health School (NHS), and Nanning No. 4 Vocational Secondary School (NVTs). The DMF forms the foundation against which project success will be evaluated. While the high level project design (impact and outcome) are unlikely to change during the course of project implementation, changes are likely to occur at the output and inputs levels of the DMF. The continued relevance of the DMF and specific targets will be monitored as part of the project supervision and the DMF will be updated accordingly when necessary.

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## II. INTRODUCTION

The Guangxi Nanning Technical Vocational Education Development Project is the second TVET project in PRC funded by ADB. It supports two TVET institutions: the Nanning Health School (NNHS) and Nanning No 4 Vocational School (NNVS) to improve quality of education by delivering focused market-oriented training that equips students with improved skills and qualifications required by the society and the labor market. The project aims, outputs and impact are responding to the Twelfth Five-Year Plan (2011-2015), The *National Medium- and Long-term Education Reform and Development Plan (2010–2020)* and the *National Health Care Reform*. It focuses on TVET strategies that will enhance development of relations with local industries, employers and communities and emphasize the development and/or modification of courses and programs, which can be used as models to other institutions in Nanning and beyond.

**Impact.** The expected impact of the project is to improved delivery of social services in Nanning M. This is to be achieved through improving TVET quality and training capacity building in NNVS and NNHS.

**Purpose** of the PPTA is to prepare a Project to be supported by a loan from the Asian Development Bank to the Government of the People's Republic of China for the execution of a Project of capital works and institutional developments designed to improve quality of TVET education, delivering market-oriented training to equips students with skills and qualifications required by the society and the labor market, the Project will be carried out by Nanning Municipal Government (NNMG) and the Borrower will make available to NNMG the proceeds of the Loan;

**This Report** is designed to report on the work undertaken by national and international consultants, to report on and summarize their findings, to identify implementation issues that need special consideration by the NNMG and make recommendations on how the project should be implemented:

**Context.** TVET sub-sector in PRC has recently received increased attention as an area of priority for stimulating economic growth, providing access to work-related skills and employment opportunities. TVET in PRC is shaped by international, regional, national, provincial economic, educational and social conditions of communities it serves. One overarching principle embedded in government policies and plans is the need to ensure that the TVET system is closely linked to the national socio-economic and socio-political development agenda. Thus the proposed project is closely linked to social, economic, political, labor market and economic factors.

The Project will be managed by three implementing agencies. The project schools, i.e., NHS and NVTs, as well as the XIDC will be the implementing agencies. XIDC is a stated-owned enterprise in Nanning which is administered by the Xiangsihu Development Zone Committee. XIDC has extensive experience in managing ADB and World Bank projects. NHS and NVTs will each set up an implementing unit to coordinate the preparation and implementation of subproject components. The implementing units will be fully staffed with technical experts and administrators in charge of school reform, procurement, financial management, disbursement, monitoring, evaluation and coordination.

**Outputs:** Four specific outputs have been identified for the Loan financed Project:

**Output 1: TVET capacity strengthened in project schools.** Under this output the project will:

- (i) improve teacher training through creation of a core teacher training system and in-service training programs,
- (ii) create competency-based curriculum (CBC), learning materials, and assessment methods,
- (iii) strengthen leadership and human resources capacity,
- (iv) establish mechanisms to support industry partnerships,
- (v) create mentoring and exchange partnerships with national and international entities and;
- (vi) develop an elderly care curriculum and bridging program at NHS.

**Output 2: Implementation of training bases.** This component will support design and implementation of:

- (i) a kindergarten training base on the NVTs campus, which will provide onsite training for students to pilot curriculum and teaching methods and conduct action research; and
- (ii) pilot rural training bases for NHS programs. Students in the rural doctor and nursing programs will be beneficiaries and they will get on site exposure to the rural health care system.

**Output 3: Upgraded buildings, campus facilities, and equipment.** The project will construct building and auxiliary facilities for the new NHS and existing NVTs campuses, together with the acquisition and upgrading of teaching, learning, special purpose equipment, library furniture and equipment, physical education and laboratory equipment, and necessary vehicles. This will improve the capacity, relevance, and effectiveness of teaching and learning.

**Output 4: Project management support.** The project will build capacity of the project management office, the implementing agencies and related stakeholders, improve monitoring and evaluation to capture lessons from all project activities under components 1, 2, and 3; and help NMG disseminate key project information and materials. Training and other capacity building events will be organized to support activities needed to achieve the other outputs.



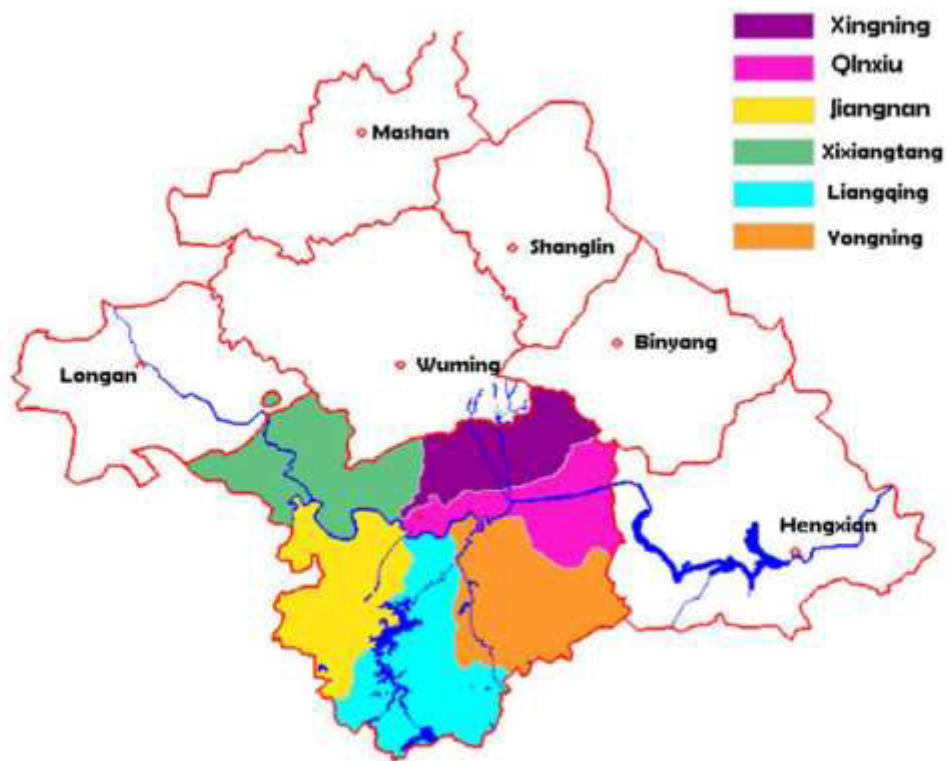
## MAPS

Figure 1 Map of Guangxi



Source: [www.china-fun.net](http://www.china-fun.net)

Figure 2 Administrative Divisions of Nanning



Source: Nanning Municipal Government, <http://english.nanning.gov.cn>

## **ACRONYMS and ABBREVIATIONS**

ADB	Asian Development Bank
ASEAN	Association of South-East Asian Nations
BCR	Benefits-Cost Ratio
BEP	Bureau of Environmental Protection
CBC	Competency Based Curriculum
CNSD	China National Statistics Data
CNY	Chinese Yuan Renminbi
CPD	Continuous Professional Development
DVAE	Department of Vocational and Adult Education, MOE
ECCE	early child care and education
EMP	Environmental Management Plan
EMS	environmental management system,
FMA	financial management assessment
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GIZ	Gesellschaft für Internationale Zusammenarbeit
GRM	Project level Grievance Redress Mechanism
GZAR	Guangxi Zhuang Autonomous Region
IEE	Initial Environmental Examination ,
ILO	International Labor Organization
IMF	International Monetary Fund
M&E	Monitoring and Evaluation
MOE	Ministry of Education
MOHRSS	Ministry of Human Resources and Social Security
NHB	Nanning Health Bureau
NNDRC	Nanning Development and Reform Commission
NNEB	Nanning Education Bureau
NNHS	Nanning Health School
NNMG	Nanning Municipal Government
NNVS	Nanning No 4 Vocational School
NPV	Net Present Value
NVTS	Nanning No. 4 Vocational Secondary School
OECD	Organization for Economic Cooperation and Development
PBOC	People's Bank of China
PMO	Project Management Office
PMO-SO	Safeguards Officer
PPMS	Project Performance Monitoring System
PPP	Public-private partnership
PPTA	Project Preparatory Technical Assistance:
PRC	Peoples' Republic of China
PSC	Project Steering Committee
RPL	Recognition of prior learning
RTB	Rural Training Base
SME	Small and Medium Enterprises
SVS	Secondary Vocational Schools
TEIA	Training and Education Institute - Australasia
TOR	Terms of Reference
TVC	Technical and Vocational College
TVET	Technical and Further Education
UNESCO	United Nations Educational, Scientific and Cultural Organization
USD	United State Dollar
WB	World Bank
XIDC	Xiangsihu Investment and Development Company

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## CURRENCY EQUIVALENTS

(as of 7 July 2013)

Currency unit	—	yuan (CNY)
CNY1.00	=	\$0.16306
\$1.00	=	CNY6.132

## NOTE

In this report, “\$” refers to US dollars.

### **III. EXECUTIVE SUMMARY**

Nanning Municipality of Guangxi Zhuang Autonomous Region (GZAR) is the capital city of GZAR, one of the 12 less-developed provinces and autonomous regions in the western part of the PRC. The purpose the Guangxi Nanning Vocational Education Development Project (GNVETDP) is to improve the quality and relevance of TVET in Nanning and GZAR through investments and interventions in two major TVET institutions in Nanning and to improve the quality and relevance of technical and vocational education and training (TVET) for preschool education and health care in. Quality improvements to be generated by the project include developing competency-based standards and curriculum, teacher training, establishing training bases and strengthening TVET management capacity in the two targeted TVET schools.

The proposed project is in close alignment with major government policies and documents including the 1996 Vocational Education Law, the National Medium and Long-Term Plan on Education Reform and Development (2010-2020), the Three-Year Action Plan for Preschool Education Development for GZAR (2011–2013) will build, renovate, or expand kindergarten schools to increase enrollment above one million, and will need an additional 21,000 teachers. The National Medium- and Long-term Education Reform and Development Plan calls for preschool education to be developed so that by 2020, one-year preschool will become the norm, two-years universalized, and three-years popularized. The priorities in the National Health Care Reform include strengthening primary health care services and the grassroots health workforce. The national Twelfth Five-Year (2011-2015) plan responds to the new challenge of PRC as an aging society by aiming to create improved elderly care programs and qualified personnel.

The proposed project will support improvements in the quality and relevance of formal TVET in identified priority activities by developing competency-based standards and competency-based curriculum in priority sectors and incorporating employability and entrepreneurship skills in curriculum modules, developing curriculum and teaching and learning materials, upgrading vocational instructor skills through industry placements and through in-service training programs, improving access of TVET institutions in poor and remote areas to high quality courses, in order to maximize resource sharing among TVET institutions, strengthening TVET management capacity and upgrading equipment at the two targeted TVET institutions.

The project's investments in human resource development will be accompanied by facilities and learning environments upgrades at two principal TVET institutions. Under these outputs, the project will support construction of teaching, learning, and practice buildings within existing campuses of two TVET institutions. The project will support greening of the TVET campuses by refurbishing, designing, constructing, and maintaining buildings that reduce energy and water use, while promoting sustainable practices such as reducing, reusing, and recycling resources.

Currently, there is a severe shortage of qualified preschool teachers, kindergarten schools, and medical personnel in the CZAR. The Action Plan for Preschool Education Development will required building, renovating, or expanding 6,628 kindergarten schools to increase enrollment to 1.33 million, and will need to employ an additional 21,000 new teachers. Increasing the numbers and providing assessment, retraining, and certification to existing teachers are all urgent needs. Nanning Municipal Government (NMG) must also build a health service system to respond to the increased demand and ensure service quality in rural and urban areas. GZAR has an average of barely half the national average of health personnel per 1,000 residents.

Nanning's TVET curriculum for nurse training and kindergarten teacher training is in need of modernization, as it is for other occupations. Many instructors have limited workplace experience, making it difficult for them to prepare their students for the jobs that they will enter. Existing management and leadership need to be improved to better prepare for a market-responsive, rather than supply-driven, TVET. The current processes for identifying training needs, and sourcing labor market information, lead to inefficiencies in identifying priority skills areas and responding to new job services. The system has also been too slow in adjusting TVET programs and specialties in order to provide marketable skills for TVET graduates and meet the skill requirements of Nanning's and Guangxi's workforce.

The project will build on the strengths of the target institutions. Both schools are national demonstration schools for the whole of China and particularly for Guangxi. There is a high percentage of women teachers in both schools and a majority of ethnic minority students and teachers at both schools. These strengths, will be important for reaching out and improving services in rural areas and therefore broader servicing the broader ethnic population mix.

To draw on these strengths and address these challenges for kindergarten teacher training at Nanning No. 4 Vocational Secondary School (NVTS) and nurse training at Nanning Health School (NHS) the project will improve the quality of (i) curriculum development and teacher training; (ii) TVET management, including human resource development; (iii) industry-school cooperation; (v) create national and international partnerships with leading institutions; and will (iv) establish kindergarten and rural health training bases and; (vii) construct new facilities and provide new equipment for NHS and NVTS.

In addition to its strong Strategic fit, the project has Special features that will make align activities with the needs of the province. The project special features include:

- (i) Development of elderly care curriculum for the nursing program to help the NVTS be more responsive to demographic shifts, emerging industry needs and better position students for employment in services which are expected to expand significantly over the coming decade. The project will create a bridging mechanism which will help students in the elderly care certification program to upgrade skills and transfer to the nursing program, thus creating new pathways for career advancement;
- (ii) Pilot training bases in kindergarten teaching and rural health provision in Nanning Municipality. The project will establish training bases for students to get practical training in kindergarten teaching and rural health services. These will create improvements in TVET quality and provide inputs to the competency-based curriculum development;
- (iii) Greening campuses. The project will contribute to the Government's objectives of developing an environmentally sustainable and energy-efficient society under its Twelfth Five-Year Plan by designing, constructing, and maintaining campus buildings that reduce energy and water use, and promoting sustainable practices, such as reducing, reusing, and recycling resources; encouraging selection of training equipment with low energy consumption; and strengthening environmental management systems to facilitate operations;

- (iv) **Industry reference groups.** The groups will work with the schools in areas such as curriculum development to help ensure that TVET is more demand-led.

**Incorporation of lessons learned.** Lessons from activities in TVET projects supported by ADB and the World Bank were incorporated into the project design. These include (i) involving representatives of industries in identifying occupational areas that are in demand and working with the project TVET institutions to develop competency-based curricula and learning materials; (ii) creating pathways to further education by establishing training programs that articulate with entry requirements for advanced programs; (iii) building a learning culture to capture lessons from experience for future policy and program development through mechanisms such as training bases and tracer studies; and (iv) establishing a robust project monitoring and evaluation system.

## **IV. THE PROPOSAL**

1. The Project seeks to improve the quality and relevance of technical and vocational education and training (TVET) for preschool education and health care in Nanning Municipality of Guangxi Zhuang Autonomous Region (GZAR). Specific quality improvements to be generated by the project include developing competency-based standards and curriculum, teacher training, establishing training bases and strengthening TVET management capacity in the two targeted TVET schools.<sup>1</sup>

## **V. THE PROJECT**

### **A. Rationale**

2. Rapid urbanization has contributed significantly to economic growth in the PRC and improved living conditions for many millions of citizens throughout the country. These successes have created new challenges for local governments to address growing disparities in access to and demand for the delivery of quality basic social services such as education and health. In response to the demand, the PRC Government's Twelfth Five-Year Plan (2011-2015) outlines measures to establish "a sound and sustainable basic public service system", with a focus on improving public education and health services. The plan is supported by recent reforms in the education and health sectors to provide universal kindergarten access and improve primary health care services in rural and urban areas.

3. Continuing urbanization and the ambitious plans for economic transformation create both a challenge and an opportunity for the education sector, and especially for the TVET sub-sector. Strengthening TVET to create skilled workers in the manufacturing and service sectors is an important priority of the government. In 2010, TVET was identified as the key target for educational expansion in the government's National Medium- and Long-term Education Reform and Development Plan (2010–2020), which seeks to better align the education system with the goals and demands of inclusive and sustainable growth. One of the main targets is for 28% of the total labor force to be highly skilled by 2020. The areas of policy reform include expansion of TVET, increasing access and equity in TVET, modernizing curriculum and teaching methods, strengthening the role of employers, and TVET management reforms.

4. The National Medium- and Long-term Education Reform and Development Plan (2010–2020) calls for preschool education to be developed so that by 2020, one-year preschool will become the norm, two-years universalized, and three-years popularized.<sup>2</sup> Promoting early child development is an essential base on which to build future human resources and address root causes of intergenerational poverty and sources of inequality. The priorities in the National Health Care Reform include strengthening primary health care services and the grassroots health workforce. The national Twelfth Five-Year (2011-2015) plan responds to the new challenge of PRC as an aging society by aiming to create improved elderly care programs and qualified personnel. In 2010, there were 178 million people in the PRC over the age of 60, and it is estimated that by 2050, the number is expected to exceed 480 million. There is an urgent need to expand elderly care services with well-trained personnel to satisfy the rapidly emerging job market which is projected to provide more than 5 million new jobs in in home, community and institutional elderly care services.<sup>3</sup>

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<sup>1</sup> The Asian Development Bank (ADB) provided project preparatory technical assistance.

<sup>2</sup> Overall, preschool students in the PRC will increase from 26.58 million in 2009 to 40 million by 2020.

<sup>3</sup> TVET and health technical assistance projects in ADB underline the need to improve training and curriculum development, develop continuing learning, and industry partnerships (TA 4868-PRC: Technical and Vocational Education Development and TA 4931-PRC: Rural Health Service System).



5. Nanning is the capital city of GZAR, one of the 12 less-developed provinces and autonomous regions in the western part of the PRC and a gateway to the Pan-Beibu Gulf and the Association of South East Asian Nations region. Nanning Municipality has a total population of 7.07 million and covers an area of 22,112 square kilometers. The municipality is mainly rural with some 73% of the population registered in rural areas and 53% of population are ethnic minorities. The development of Nanning as a regional urban center has led to rapid urbanization and an annual growth rate of 15.5%. Industrialization and urbanization have created a rising demand for skilled workers and an extension of social services to provide balanced access and social development in rural and urban areas.

6. Currently, there is a severe shortage of qualified preschool teachers, kindergarten schools, and medical personnel. The Three-Year Action Plan for Preschool Education Development for GZAR (2011–2013) will build, renovate, or expand 6,628 kindergarten schools to increase enrollment to 1.33 million, and will need to employ an additional 21,000 new teachers.<sup>4</sup> In 2011, only 600 preschool teachers graduated in the province. Increasing the numbers and providing assessment, retraining, and certification to existing teachers are all urgent needs. Nanning Municipal Government (NMG) must also build a health service system to respond to the increased demand and ensure service quality in rural and urban areas. In 2010, the national average was 7.6 health personnel per 1,000 urban residents but GZAR has only an average of 3.6 health personnel per 1,000 residents. Nanning Municipality has an average of 5.35 health personnel per 1,000 urban and 0.76 personnel per 1,000 for rural residents.<sup>5</sup>

7. Nanning's TVET curriculum for nurse training and kindergarten teacher training is in need of modernization, as it is for other occupations. Many instructors have limited workplace experience, making it difficult for them to prepare their students for the jobs that they will enter. Existing management and leadership need to be improved to better prepare for a market-responsive, rather than supply-driven, TVET. There is a lack of systematic processes for identifying training needs, and accurate and consistently sourced labor market information, which leads to inefficiencies in identifying priority skills areas and responding to new job services. There are also inefficiencies in adjusting TVET programs and specialties in order to provide more marketable skills for TVET graduates and meet the skill requirements of Nanning's and Guangxi's workforce.

8. However, both schools have useful strengths. Both schools are national demonstration schools for the whole of China and particularly for Guangxi. There is a high percentage of women teachers in both schools and a majority of ethnic minority students and teachers at both schools. These strengths, will be important for reaching out and improving services in rural areas and therefore broader servicing the broader ethnic population mix.

9. To draw on these strengths and address these challenges for kindergarten teacher training at Nanning No. 4 Vocational Secondary School (NVTs) and nurse training at Nanning Health School (NHS) the project will improve the quality of (i) curriculum development and teacher training; (ii) TVET management, including human resource development; (iii) industry-school cooperation; (v) create national and international partnerships with leading institutions; and will (iv) establish kindergarten and rural health training bases and; (vii) construct new facilities and provide new equipment for NHS and NVTs.

10. **Strategic fit.** The project is the second ADB-financed lending project for TVET in the PRC, and can play a demonstration role for the development of TVET for social services in

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<sup>4</sup> People's Government of GZAR. 2011. Action Plan for 3-year Preschool Education in Guangxi. 21 September 2011. Nanning. In 2010, Guangxi had a total of 5,349 kindergartens serving 1.18 million students and employing 37,000 kindergarten teachers.

<sup>5</sup> Nanning has 23,518 village clinics, of which only 8.7% are public.

the PRC and other countries. The proposed project is in line with the ADB's PRC country partnership strategy, 2011–2015<sup>6</sup> and Strategy 2020. It supports ADB's education policy, and education and health sector strategies. It supports the PRC's Twelfth Five-Year Plan, 2011–2015, which prioritizes developing high-quality human resources, public sector service, and accelerating educational reform. The project will contribute to creating a qualified labor force for social services.

11. **Special features.** The project includes (i) **Development of elderly care curriculum for the nursing program.** This will help NVTs be more responsive to demographic shifts, emerging industry needs and better position students for employment in services which are expected to expand significantly over the coming decade. The project will create a bridging mechanism which will help students in the elderly care certification program to upgrade skills and transfer to the nursing program, thus creating new pathways for career advancement; (ii) **Pilot training bases in kindergarten teaching and rural health provision in Nanning Municipality.** The project will establish training bases for students to get practical training in kindergarten teaching and rural health services. These will create improvements in TVET quality and provide inputs to the competency-based curriculum development; (iii) **Greening campuses.** The project will contribute to the Government's objectives of developing an environmentally sustainable and energy-efficient society under its Twelfth Five-Year Plan by designing, constructing, and maintaining campus buildings that reduce energy and water use, and promoting sustainable practices, such as reducing, reusing, and recycling resources; encouraging selection of training equipment with low energy consumption; and strengthening environmental management systems to facilitate operations; (iv) **Industry reference groups.** The groups will work with the schools in areas such as curriculum development to help ensure that TVET is more demand-led.

12. **Incorporation of lessons learned.** Lessons from activities in TVET projects supported by ADB and the World Bank<sup>7</sup> were incorporated into the project design. These include (i) involving representatives of industries in identifying occupational areas that are in demand and working with the project TVET institutions to develop competency-based curricula and learning materials; (ii) creating pathways to further education by establishing training programs that articulate with entry requirements for advanced programs; (iii) building a learning culture to capture lessons from experience for future policy and program development through mechanisms such as training bases and tracer studies; and (iv) establishing a robust project monitoring and evaluation system.

## **B. Impact and Outcome**

13. The **impact** of the proposed project will be improved delivery of social services in Nanning Municipality. The **outcome** will be increased TVET quality and training capacity in NHS and NVTs by 2020.

## **C. Outputs**

14. **Output 1: TVET capacity strengthened in project schools.** Under this output the project will (i) improve teacher training through creation of a core teacher training system and in-service training programs, (ii) create competency-based curriculum (CBC), learning materials, and assessment methods, (iii) strengthen leadership and human resources capacity, (iv) establish mechanisms to support industry partnerships, (v) create mentoring and exchange partnerships with national and international entities and; (vi) develop an elderly care curriculum and bridging program at NHS.

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<sup>6</sup> ADB. 2012. Country Partnership Strategy: People's Republic of China, 2011–2015. Manila.

<sup>7</sup> Development Coordination (accessible from the list of linked documents in Appendix 2).

15. **Output 2: Implementation of training bases.** This component will support design and implementation of (i) a kindergarten training base on the NVTs campus, which will provide onsite training for students to pilot curriculum and teaching methods and conduct action research; and (ii) pilot rural training bases for NHS programs. Students in the rural doctor and nursing programs will be beneficiaries and they will get on site exposure to the rural health care system.
16. **Output 3: Upgraded buildings, campus facilities, and equipment.** The project will construct building and auxiliary facilities for the new NHS<sup>8</sup> and existing NVTs campuses, together with the acquisition and upgrading of teaching, learning, special purpose equipment, library furniture and equipment, physical education and laboratory equipment, and necessary vehicles. This will improve the capacity, relevance, and effectiveness of teaching and learning.
17. **Output 4: Project management support.** The project will build capacity of the project management office, the implementing agencies and related stakeholders, improve monitoring and evaluation to capture lessons from all project activities under components 1, 2, and 3; and help NMG disseminate key project information and materials. Training and other capacity building events will be organized to support activities needed to achieve the other outputs. Delivery of outputs will be the responsibility of the NNMG assisted by international and local consultants as specified in the appendixes to this document.

#### **D. Investment and Financing Plans**

18. The project is estimated to cost \$102.69 million (Table 1).

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<sup>8</sup> The civil works for NHS will take place on a new campus in Xiangsihu new district. The campus is being constructed in two phases: (i) with domestic financing, and (ii) with domestic financing and the ADB loan. In total, 13 buildings will be built along with sports facilities and landscaping. The ADB loan will support construction of (i) the library and administration building and lecture hall, (ii) a laboratory and teaching center, and (iii) a classroom building and underground works. All other facilities will be under phase one (start August 2012). All buildings will comply with the most recent PRC standards and codes pertaining to building energy-efficiency and safety. The project will promote resource-efficiency and pollution prevention by installing solar water heaters, harvesting rainwater and constructing storm water retention ponds, using energy-efficient construction materials, and adhering to PRC green public procurement policies where these are applicable.

19.

**Table 1: Project Investment Plan**

(\$ million)

Item	Amount <sup>a</sup>
<b>A Base Costb</b>	
<b>B Strengthened Capacity of TVET Schools</b>	1.45
1. Implementation of Pilots	0.43
2. Upgraded Buildings, Campus Facilities, and Equipment of TVET Schools	85.44
3. Effective Project Management and Implementation Arrangements	1.51
<b>Subtotal (A)</b>	<b>88.83</b>
<b>E. Contingencies</b>	<b>11.94</b>
<b>F. Financing Charges During Implementation</b>	<b>1.92</b>
<b>Total (A+B+C)</b>	<b>102.69</b>

a. Investment costs include taxes and duties amounting to \$2.54 million to be financed by the PRC Government and ADB loan. The following principles were followed in determining the amount of taxes and duties to be financed by ADB: (i) the amount is within reasonable country thresholds; (ii) the amount does not represent an excessive share of the project investment plan; (iii) the taxes and duties apply only to ADB-financed expenditures; and (iv) financing of the taxes and duties is relevant to the success of the project.

b. In mid-2013 prices.

a. Physical contingencies were computed at 11% of total civil works and equipment costs for NHS and NVTS to match the contingency provision used in the domestic feasibility studies as contingencies are fully financed by the government. Physical contingency of 10% was applied for other costs, such as consulting services and TVET capacity strengthening. Price contingencies were computed at 2.3% for 2014, 1.9% for 2015, and 1.8% thereafter for foreign exchange costs while for local currency costs, these were computed at 3.5% for 2014, and 3.0% thereafter.

b. Includes interest and commitment charges. Interest during construction for ADB loan has been computed at the USD 5-year fixed swap rate plus a spread of 0.4% and maturity premium of 0.1%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

20. The Chinese government has requested a loan of \$50 million from ADB's ordinary capital resources to help finance the project. The loan will have a 25-year term, including a grace period of 5 years, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, a commitment charge of 0.15% per year, the interest rate and other charges during construction not to be capitalized in the loan, and such other terms and conditions set forth in the draft loan and project agreements.

21. The government has requested that repayment will follow the straight-line commitment-linked repayment option. Based on the above loan terms and these repayment option and dates, the average loan maturity is 15.25 years and the maturity premium payable to ADB is 0.1% per annum. The Controller's Department in ADB will provide the final confirmation and issue the amortization schedule following loan negotiations. The government will finance the remaining amount of \$52.69 million of project cost including contingencies. Furthermore the government and EA have given an assurance they will provide counterpart funding for the project in a timely manner, and will provide any additional

counterpart funding needed to cover any shortfall of funds or cost overruns. The financing plan is in Table 2 and is further detailed in the project administration manual (PAM).<sup>9</sup>

**Table 2: Financing Plan**

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank	50.00	48.7
Government	52.69	51.3
<b>Total</b>	<b>102.69</b>	<b>100.0</b>

Source: Asian Development Bank estimates.

22. PRC is the borrower of the loan. The loan proceeds will be entirely made available to the NMG under its relending arrangements, upon terms and conditions satisfactory to ADB. NMG will utilize the loan proceeds in accordance with the project agreement. NMG will bear the foreign exchange and interest rate variation risks associated with the loan and assume responsibility for debt servicing and repayment. Most of the loan proceeds are being provided to XDIC as the implementing SOE. The indicative flow of funds and relending arrangements are in draft PAM (footnote 11).

## E. Implementation Arrangements

23. The implementation arrangements are summarized in Table 3 and detailed in the PAM.

**Table 3: Implementation Arrangements**

Aspects	Arrangements
Implementation period	April 2014–March 2019
Estimated completion Date	31 March 2019 (estimated loan closing date: 30 September 2019)
Management	
(i) Oversight body	Nanning ADB TVET Project Leading Group (PLG)  Chair: Deputy Mayor  Members: Representatives from Nanning Development and Reform Commission (NNDRC), Nanning Finance Bureau, and Nanning Education Bureau; other departments will be seconded as needed.
(ii) Executing agency	NMG will be the executing agency and take overall responsibility for project implementation. The PLG will provide high-level direction and policy guidance, while the PMO in NNDRC, working under the guidance of the leading group, will handle overall coordination and management of the project, including progress reports and necessary procurement documentation (e.g., bidding documents, bid evaluation reports) for ADB's approval.

<sup>9</sup> Project Administration Manual (accessible from the list of linked documents in Appendix 2).

Aspects	Arrangements		
(iii) Implementing agencies	NHS, NVTs, and XIDC will be the implementing agencies and take overall responsibility for implementing different parts of the project. The PMO will supervise day-to-day activities and provide coordination support for the implementation of the project. XIDC is a state owned enterprise wholly owned by NMG and specializing in urban infrastructure construction. A project implementation agreement will be concluded between NMG and XIDC under which XIDC procures and constructs the project facilities and then later makes these available to the NHS and NVTs to operate and maintain. NMG will be the ultimate asset owner.		
Procurement	International competitive bidding	3 contracts	\$63.67million
	National competitive bidding	10 contracts	\$14.93 million
	Shopping	4 contracts	\$0.32 million
	A procurement agent will be hired to assist the PMO and XIDC to undertake the project procurement, and the PIC will also lend support		
Consulting services	Individual consultant recruitment	5 person months	\$50,000
	Quality- and cost-based selection	125 person months	\$1.46 million
Retroactive financing and/or advance contracting	Advanced contracting has been requested to engage two consulting service contracts, and four civil works contracts. Retroactive financing for civil works and consulting services will finance up to \$6.50 million of eligible expenditure (13% of the ADB loan) incurred prior to loan effectiveness but not earlier than 12 months before the loan agreement is signed. ADB project team has verified the urgent nature of these works and services and that plans are in place to make an early start to the works concerned.		
Disbursement	The loan proceeds will be disbursed in accordance with ADB's <i>Loan Disbursement Handbook</i> (2012, as amended from time to time) and detailed		

ADB = Asian Development Bank, Nanning Educational Bureau, NNDRC = Nanning Development and Reform Commission, NFB = Nanning Finance Bureau, NHB = Nanning Health Bureau, NHS = Nanning Health School, NMG = Nanning Municipal Government, NVTs = Nanning No. 4 Vocational Secondary School, PIC = project implementation consultant., PLG = project leading group, PMO = project management office, TVET = technology and vocational education and training, XIDC = Xiangsihu Investment and Development Company.

Source: Asian Development Bank estimates.

24. The project includes funding for international and national consulting services to support the executing agency and implementing agencies to implement the project and to carry out capacity building activities. The project design also includes for a start-up consultant to assist the project management office (PMO) with project readiness activities. The terms of reference for the consulting services are included in the PAM.

## VI. TECHNICAL ASSISTANCE DUE DILIGENCE

### A. Technical

25. The project will construct 18 buildings on two campuses, with a total building area of 187,910 square meters. All buildings will be designed and constructed in accordance with relevant PRC and GZAR design standards and codes. Campus design and management plans incorporate fire truck routing and emergency evacuation plans (including temporary shelter, emergency evacuation routes, and emergency exits), campus traffic and parking plans promoting pedestrian and bicycle traffic and advanced design features including access by emergency vehicles. At NVTs, building type and layout of the student dormitory were revised to better meet functional requirements, and the campus design was adjusted to provide more green space for recreation activities. At NHS, a comprehensive campus security system will be implemented. Sustainable campus management features will be introduced on both campuses. The TVET capacity building components have been designed to incorporate international best

practices. Equipment specifications have been drawn up compatible with the improvements in TVET quality.

## **A. Economic and Financial**

26. **Economic benefits.** Conventional economic viability analysis, using an economic internal rate of return (EIRR) calculation was applied in determining the viability of the .NHS (health) component. The monetized value of the benefits compared with the projected economic costs yielded an EIRR value of 17.6%. Over a 20 year period, NHS graduates, 95% of which are assumed to find employment, are projected to generate total incremental income earnings of about CNY614 million. These students will be better trained and more competent in delivering health services and contribute to improving health outcomes in rural and urban areas.

27. Analysis for NVTs (early childhood education) component utilized a simple cost-benefit analysis, which estimated the net present value of the annual stream of economic benefits derived from the proposed investments and yielded satisfactory results as documented in the economic analysis.<sup>10</sup> Increasing investment in early child development is one of the most cost-effective strategies for breaking intergenerational poverty and improving productivity and social cohesion in the long run<sup>11</sup>. Other external benefits of both components of the project which will accrue are (i) improvements in TVET will filter to non-project TVET institutions; (ii) improved responsiveness of TVET to changing sector needs; and (iii) be a facilitator of public services reform and improvement. The project will directly raise TVET quality for about 5,850 TVET students annually, which includes increased capacity of 1,850 students due to improved and expanded facilities. Over a 25 year period, a total of 31,028 students<sup>12</sup> will successfully graduate and join the active work force. This is expected to improve the delivery of kindergarten and health services in Nanning and GZAR.

28. **Financial sustainability.** A financial sustainability analysis was undertaken during project preparations based on fiscal impact. Analysis indicates the project cost as a proportion Nanning Government's annual expenditure will be insignificant ranging from 0.03% in 2013, increasing to 0.34% in 2014, and decreasing to 0.07% in 2017. The government's annual commitment to the project as a percentage of the total education budget is projected to increase from 0.19% in 2013 to 0.33% in 2017. The financial analysis<sup>13</sup> confirms that NMG has adequate financial resources and will be able to provide the necessary counterpart funds for the project. The analysis also shows that NMG has the financial capacity to cover annual operations, maintenance costs, and debt service requirements.

## **B. Governance**

29. **Financial management and procurement capacity assessment.** The project will be ADB's second loan to Nanning, which is also successfully managing other projects funded by bilateral and multilateral financial institutions. The financial management and procurement capacity assessments focused on Xiangsihu Investment and Development Company (XIDC) as the principal implementing agency, and concluded that XIDC has adequate capacity for financial management and procurement in accordance with ADB policies and procedural requirements, as well as national procurement laws and regulations.

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<sup>10</sup> Economic Analysis (accessible from the list of linked documents in Appendix 2).

<sup>11</sup> K. Wu et al. 2012. Early Child Development in China. World Bank eLibrary.

<sup>12</sup> Consisting of 15,087 nurses, 1,591 rural doctors and 14,350 kindergarten teachers.

<sup>13</sup> Financial Analysis (accessible from the list of linked documents in Appendix 2).

30. The Nanning Finance Bureau already has a proven track record in the financial management of both ADB and World Bank projects. The PMO and TVET institutions will not have major roles in project financial management and procurement. The project management output includes the provision of training and advice to the PMO and implementing agencies in ADB procedures, including procurement, disbursement, project management, accounting, and financial reporting systems. The results of the financial management assessment (FMA) are summarized in the financial analysis. Recommended improvements in the FMA have been incorporated into the project design and are documented in the PAM. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with NMG and the PMO. The specific policy requirements and supplementary measures are also described in the PAM.

## C. Poverty and Social

31. A social, poverty, and gender analysis<sup>14</sup> was conducted in accordance with ADB guidelines. Nanning Municipality is mainly rural with 73% of the population registered in rural areas. Ethnic minorities comprise 53% of the population and among the groups<sup>15</sup> the Zhuang constitute 51% of the total population. Poverty is largely a rural phenomenon in Nanning Municipality. The rural poverty rate is 19.5%. The percentages of students coming from poor areas are 28%, 36%, and 41% respectively for preschool, nursing, and rural doctor programs. All students are exempt from tuition fees, and there are various subsidies for supporting students who are poor or from remote areas and ethnic minorities. Actions under the social action plan include: (i) creation of an ethnic minority culture curriculum for the kindergarten program; (ii) targets to increase enrollment of students from rural and poor areas; (iii) creation of a bridging module in the elderly care program to provide new pathways to higher education for elderly care workers; (iv) community consultations on design and implementation of campus construction activities; (v) social indicators (ethnicity, *hukou*,<sup>16</sup> sex, income group.) in project monitoring; and; (vi) a social and gender expert on the consulting team. Requirements to use core labor standards and provide HIV/AIDS awareness training in the contracts for construction will mitigate social risks. The social action plan is in the PAM.

32. **Gender and development.** The project is categorized as effective gender mainstreaming. Both schools have a majority of female staff and students. The project will create employment opportunities for a large number of students from poor and rural areas which will accrue primarily to women. Improving the quality of social services TVET will help create career pathways for women to enter the new service driven economy<sup>17</sup> and participate in the social and economic development of Nanning. Actions in the gender action plan<sup>18</sup> include (i) preparation of gender sensitive materials for the CBC; (ii) targets for training for women staff; (iii) development of a recruitment program in rural areas with emphasis on addressing gender stereotypes in TVET major selection; and (v) ensuring that women have access to jobs related to project construction activities.

## D. Safeguards

33. **Environment.** The project is classified as category B for environment. An initial environment examination (IEE),<sup>19</sup> including the environmental management plan was prepared and disclosed on the ADB website. The IEE complies with ADB's Safeguard Policy

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<sup>14</sup> The summary poverty reduction and social strategy is accessible from the list of linked documents in Appendix 2

<sup>15</sup> Other ethnic groups include Yao, Miao, Dong, and Hui.

<sup>16</sup> The "hukou" is a document that states the residency location of a PRC citizen and determines the source and nature of welfare benefits.

<sup>17</sup> Rural women have largely been left out of employment opportunities from urbanization and industrialization.

<sup>18</sup> The Gender Action Plan is accessible from the list of linked documents in Appendix 2.

<sup>19</sup> The Initial Environmental Examination is accessible from the list of linked documents in Appendix 2.



Statement (2009)<sup>20</sup>. The IEE concludes that the project's anticipated environmental impacts can be mitigated through implementation of the environmental management plan. During construction, some environmental impacts are anticipated including noise, fugitive dust, demolition wastes, and risks to community and occupational health and safety. Overall, construction-related impacts are localized, short-term, and can be effectively mitigated through the application of good construction practices. During operation, no major environmental impacts are anticipated and minor impacts will be addressed through the improvement of campus-wide environmental management systems. Environmental management is supported by loan covenants, capacity development and institutional strengthening activities under the project. Environmental complaints or disputes will be handled in accordance with the grievance redress mechanism established for the project. The project will help establish energy-efficient, safe and green campuses. The consulting services under the project will provide expert support to NHS and NVTs in developing campus-wide environment management systems based on the Draft Campus Greening Policy Framework defined in the IEE.

34. **Resettlement.** The involuntary resettlement category is C. The project activities will neither require land acquisition nor resettlement. Appropriate resettlement due diligence has been undertaken for the new NHS campus and yielded satisfactory results with no outstanding issues.

35. **Indigenous peoples.** The indigenous peoples category is B. No project activities will adversely affect indigenous people, and ethnic minority students and staff, which are a majority at both TVET schools, will benefit as well as people benefitting from rural health services and kindergartens, many of whom are ethnic minorities. As per paragraph 17 SR3<sup>21</sup> of ADB's Safeguard Policy Statement (2009), the project has included measures in the overall project design in lieu of preparing a separate IPP. An analysis of the issues<sup>22</sup>, from consultations with staff, students, other stakeholders (e.g. the Nanning Ethnic Minority Affairs Bureau), has been prepared and recommended actions integrated into the project design. Design elements to ensure ethnic minority inclusion such as: (i) design of ethnic minority culture curriculum for kindergarten major; (ii) assessment of ethnic minority issues in elderly care to provide input to the new program; (iii) improvement to human resources recruitment practices for rural areas and; (iv) inclusion of social indicators including ethnicity in tracers studies are included in all relevant TVET capacity building components and the social action plan.

## E. Risks and Mitigating Measures

36. Major risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.<sup>23</sup>

**Table 4: Summary of Risks and Mitigating Measures**

Risks	Mitigating Measures
Poor social perception of TVET limits interest of	Regular involvement of central government which is strongly supportive of TVET development, the need to improve TVET quality, and enhance the value and social status of TVET education as a facilitator of

<sup>20</sup> ADB. 2009. Safeguard Policy Statement. Manila.

<sup>21</sup> "If Indigenous Peoples are the sole or the overwhelming majority of direct project beneficiaries, and when only positive impacts are identified, the elements of an IPP could be included in the overall project design in lieu of preparing a separate IPP".

<sup>22</sup> Appendix 3 in the PAM.

<sup>23</sup> Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

<b>Risks</b>	<b>Mitigating Measures</b>
potential trainees.	economic growth.
The commitment of TVET institutions to implementing change is not sustained.	TVET improvement strategies have been developed through a consultative process that indicated a strong recognition of the need to improve, and with the strategies individually reviewed and finalized with the participation of the schools themselves.
Insufficient interest by NMG & GZARG in integrating the pilot innovations	NMG is willing to give a loan assurance that they will actively disseminate the pilot results and seek to make them models of best practice. There will also be ongoing policy dialogue on the pilot activities with relevant departments of NMG and GZARG.
Procurement capacity is low, leading to mistakes or delays in procurement.	The project will provide training in project management and planning. Standard bidding documents will be used along with ADB advance contracting facility, and advice and support of a tendering company and consultants provided. Timely provision of this support is planned to maximize its mitigation impact, including the use of a start-up consultant in advance of loan effectiveness.

ADB = Asian Development Bank, GZARG = Guangxi Zhuang Autonomous Region Government, NMG = Nanning Municipal Government, TVET = technical and vocational education and training.

Source: Asian Development Bank.

## **VII. ASSURANCES AND CONDITIONS**

37. The PRC government and NMG have assured ADB that the implementation of the project shall conform to all applicable ADB policies including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the project administration manual and loan documents.

38. A Training Implementation Plan satisfactory to ADB will be prepared within six months of the start of the project as a condition for withdrawal of eligible TVET strengthening expenditures. The PRC government and NMG have agreed with ADB on certain covenants for the project, which are set forth in the draft loan and project agreements.

## **VIII. RECOMMENDATION**

39. Given the information supplied above the Consultant is satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the loan of \$50,000,000 to the People's Republic of China for the Guangxi Nanning Vocational Education Development Project, from ADB's ordinary capital resources, with interest to be determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; for a term of 25 years, including a grace period of 5 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan and project agreements presented to the Board. Accordingly the project is recommended for approval by the Board.

## IX. APPENDIXES

### Appendix 1: DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets / Indicators	Data sources / Reporting Mechanisms	Assumptions and Risks
<b>Impact</b> Improved delivery of social services in Nanning Municipality	<b>By 2022</b> Gross enrolment rate for (i) 3-year preschool will be 75%, and (ii) 1-year preschool 95%. (Baseline 2010: 54% for 3-year preschool and 74% 1-year preschool to be disaggregated by urban/rural)  Ratio of rural doctors / 1,000 people will be 2.10 and the ratio of licensed nurses / 1,000 people will be 3.14. (Baseline ratio 2009: rural doctors 0.8 and licensed nurses 1.39)	NEB annual statistics   NHB annual statistics	<b>Assumption</b> Government commitment to improving delivery of social services is sustained with adequate budget support  <b>Risk:</b> The economy fails to grow, and social services expand, on a sustainable basis
<b>Outcome</b> Increased TVET quality and training capacity in the NHS and NVTs by 2020	<b>By 2018</b> At least 20 teachers and 2,000 students (no less than 85% female) trained in new elderly care curriculum (baseline is 0)  Increased employer satisfaction with knowledge, skills and competencies of employees graduating from the project TVET institutions (Baseline to be determined through baseline studies in 2014).	School department records   Impact assessment report, employer survey and tracer studies	<b>Assumption</b> Public and private industry experts participate fully in developing and delivering effective training programs.  <b>Risk</b> Poor social perception of TVET limits interest of potential trainees
<b>Outputs</b> 1. TVET capacity strengthened in project schools	At least 80% of teachers trained in student-centered pedagogy and competency-based curriculum development in both schools (at least 50% women) by 2017.  Gender inclusive training, curriculum, and recruitment outreach materials developed in collaboration with industry and TVET schools.  At least 5 leadership workshops/ seminars/ trainings conducted for both NVTs (at least 40 participants) and NHS (at least 50 participants) (no less than 40% female) by 2016.  Human Resource	School quarterly reports   Approved materials   Workshop reports	<b>Assumption</b> TVET institutions have adequate and qualified manpower for capacity strengthening  <b>Risk</b> Commitment of TVET institutions to implementing change in teaching and learning methods is not sustained

Design Summary	Performance Targets / Indicators	Data sources / Reporting Mechanisms	Assumptions and Risks
	<p>Development Framework, including indicators of quality practice established and implemented in both schools by 2016</p> <p>Elderly care curriculum developed and approved by Q2 year 2</p>	<p>Framework document and reports</p> <p>Approved curriculum documents and letters of endorsement by NHB and NHS</p>	
2. Pilot programs implemented in Project schools	<p>At least two rural training bases established with local practitioners as trainers by 2015 (at least 80% nurses and 30% of rural doctors female trainees)</p> <p>One kindergarten training base functioning at NVTs using action research and inclusive design features (i.e., ethnic minority curriculum, standards for student to space ratio, etc.) by 2016.</p>	<p>Project progress reports</p> <p>Project progress reports</p>	<p><b>Assumption</b> Operations and maintenance costs of sustaining and expanding the pilots after the project will be provided</p> <p><b>Risk</b> Insufficient interest by GZARG &amp; NMG in integrating the pilot innovations</p>
3. Buildings, campus facilities, and equipment upgraded	<p>Civil works and facilities completed for NVTs and (13 buildings) and NHS (5 buildings) by year 2016.</p> <p>Green campus policy designed, EMS developed and implemented on both campuses by 2016</p> <p>Training equipment installation in the 2 TVET institutions completed by year 4</p>	<p>Project progress reports</p> <p>Project progress reports</p> <p>Project progress records</p>	<p><b>Assumptions</b> Government counterpart inputs are provided on time and are adequate.</p> <p>Executing agency and implementing agencies have strong capacity in project management and the procurement agent and PIC are hired in a timely manner. Equipment does not become obsolete due to changing program functional needs.</p>
4. Project management support implemented	<p>PMO established and fully staffed by year 1.</p> <p>PMO staff provided with training from year 1.</p>	<p>Project progress reports</p> <p>Project progress reports</p>	<p><b>Assumption</b> PMO fully staffed.</p> <p><b>Risk</b> Procurement</p>

Design Summary	Performance Targets / Indicators	Data sources / Reporting Mechanisms	Assumptions and Risks
	Workshops to disseminate knowledge and lessons learned conducted.	Midterm and completion report	capacity is low, leading to delays or mis-procurement

Activities with Milestones	Inputs	
<b>1. TVET Capacity Strengthened in Project Schools</b>	<b>ADB: Total \$50 million</b>	
<b>1.1 Curriculum Development</b>	<b>Item</b>	<b>Amount (\$ million)</b>
1.1.1 Needs and demands analysis completed within 3 months of commencement of consulting service	Civil Works,	
1.1.2 Development of new or modified training modules for kindergarten teachers and nurse educators by end 2016	Equipment,	
	Capacity Development	
<b>1.2 Teacher Training</b>	<b>Government: Total \$52.69 million</b>	
1.2.1 Design & delivery of student-centered methods courses in both schools by 2016	<b>Item</b>	<b>Amount (\$ million)</b>
1.2.2 Design & delivery of CBC development courses in both schools by 2016	Civil works, design and supervision	
1.2.3 Identify and build capacity of a cohort of 10 key trainers in each school responsible for teaching-learning methods & curriculum development by 2017	Equipment	
1.2.4 Develop & implement a CPD framework to integrate new courses and positions by 2017	Capacity development	
<b>1.3 Education Leadership</b>	Contingencies	
1.3.1 Conduct needs and demands analyses for educational leadership course by 2014	Financing charges during implementation	
1.3.2 Develop reference materials for educational leadership practice by 2015		
<b>1.4 Human Resources</b>		
1.4.1 Conduct needs assessment for human resources development strategy at both schools by 2014		
1.4.2 Development and implementation of tracer studies by 2015		
1.4.3 Identification of institutions and establishment of partnership agreements by 2016		
<b>1.5 Elderly Care</b>		
1.5.1 Conduct occupational analysis for nurses for the elderly care by end of 2014		
1.5.2 Development and implementation of CBC and standards for training of nurses for the elderly by 2016		
1.5.3 Develop bridging courses between elderly care worker training and nursing program by 2016		
<b>2. Pilot programs implemented in Project schools</b>		
<b>2.1. Rural Training Bases</b>		

Activities with Milestones	Inputs	
<p>2.1.1 Select the site(s) for the rural training centers by 2014</p> <p>2.1.2 Pilot test the rural training center concept (Implement the road map prepared during PPTA) by 2016</p> <p>2.1.3 Evaluate the pilot and institutionalize rural training centers based on the results of the pilot by 2016</p> <p>2.1.4 Develop sustainability strategy for post pilot stage by 2017</p> <p><b>2.2 Kindergarten Training base</b></p> <p>2.2.1 Kindergarten constructed, fully equipped and operational by 2016</p> <p>2.2.2 Vision, mission and strategies for a sustainable kindergarten training base formulated by 2015</p> <p>2.2.3 Innovative teaching-learning strategies developed and implemented by 2017</p> <p>2.2.4 Action research program established by 2016</p> <p><b>3. Buildings, campus facilities and equipment upgraded</b></p> <p>3.1 Preparation and completion of engineering design, i and bidding documents by 2014</p> <p>3.2 Commencement of civil works construction by Q4 2013 and completion by 2017</p> <p>3.3 Preparation and completion of equipment specifications and bidding documents by 2014</p> <p>3.4 Procurement, installation, and testing of equipment by 2017</p> <p><b>4. Project management support implemented</b></p> <p>4.1 Appointment of consultant and initial training of PMO and implementing agency staff completed by Q1 2014</p> <p>4.2 Establishment of an operational PPMS by Q3 2014</p> <p>4.3 Implementation and monitoring of the environmental management plan and the social and gender action plans (ongoing until project completion)</p> <p>4.4 Evaluate and disseminate experiences by 2018</p>		

## **Appendix 2: LIST OF LINKED DOCUMENTS**

<http://www.adb.org/Documents/RRPs/?id=45511-XX-3>

1. Sector Assessment (Summary): Education
2. Contribution to the ADB Results Framework
3. Development Coordination
4. Summary Financial Analysis
5. Summary Economic Analysis
6. Country Economic Indicators
7. Summary Poverty Reduction and Social Strategy
8. Gender Action Plan
9. Initial Environmental Examination
10. Risk Assessment and Risk Management Plan

### **Supplementary Documents** (available upon request)

11. Full Financial Analysis (including FMA)
12. Full Economic Analysis
13. Resettlement Due Diligence

**Note:** The PAM has appendixes, which include profiles of the two targeted TVET schools, strategies for TVET strengthening, and detailed terms of reference and budgets for the consulting services to be financed under the loan.

## Appendix 3: SECTOR ASSESSMENT (SUMMARY)

### Context of Sector Analysis

1. **The People's Republic of China is one of the fastest growing economies with its average annual growth rate of 10% in the past three decades.** The government's Twelfth Five-Year Plan targets annual gross domestic product (GDP) growth of 7.5% during 2011–2015. Despite impressive growth, the People's Republic of China (PRC) is facing a number of urgent development challenges. The government's key priorities include rebalancing the economy from export- to consumption-oriented growth, from low to higher value added industries supporting rapid urbanization, and environmentally sustainable and socially inclusive development, all of which require significant investments in human capital. Through these policies, the PRC's relative advantage in unskilled labor-intensive products is anticipated to decline in favor of a more skill-intensive and value added products, and production-based secondary and tertiary economy. This will require a rebalancing and general up-skilling of the workforce, including a better-developed services industry workforce, and public social services.

2. **Urbanization.** Currently, the PRC Government plans to spend some CNY40 trillion (USD 6.5 trillion) to bring 400 million people to its cities over the next decade. The aim is that 60% of China's population is urban residents by 2020. In the past 10 years, there was an annual labor force migration of about 10 million from rural to urban areas. The annual rate of urban population growth is about 3.5 %. In 2011, rural population accounted for 665 million. Nationally, there was a decrease of 11.20% in rural population in the 2005–2011 period. Urban population has increased from 20% in 1980 to 51.3% in 2011,<sup>25</sup> the first year the urban population exceeded the rural population.<sup>26</sup>

3. **Demographic changes.** Over the last two decades, the PRC's population increased at a rate of 1% annually from 1.14 billion in 1990 to 1.34 billion in 2011, however, the annual population growth rate decreased from 1.36% in 1990 to 0.47% in 2010. The overall labor market growth has slowed to near zero as a consequence of limited population growth. The labor market is expected to reach a peak at around 920 million in 2013, and decline gradually afterwards due to family planning policy and an aging population. In contrast, the national percentage of people over 60 will increase from 12.5% in 2010 to 20% in 2020. By 2030, the number will double and is projected to reach 440 million by 2050. National population growth in the age group above 65 years has increased from 7.68% in 2006 to 8.37% in 2011.

4. The Guangxi Zhuang Autonomous Region (GZAR) is located on the south coast of the PRC, borders Vietnam and is a gateway to the Pan-Beibu Gulf and regions of Association of Southeast Asian Nations (ASEAN). The GZAR is also one of the 12-less developed PRC provinces and autonomous regions in the western part of the PRC. Nanning, with a total 2011 population of 7.12 million, is the capital of GZAR and the city's development as a regional urban center has led to rapid urbanization and an annual growth rate of 15.5%. Industrialization has created a rising demand for skilled workers and extension of social services to provide balanced access and social development in rural and urban areas. The percentage of GDP generated the service sector in Nanning, 32.6% in 2010, was lower than the national average at 43%. Furthermore, some 50% of the population is still employed in agriculture. This, together with its strategic location as a gateway to the ASEAN area, implies that Nanning has a huge potential for economic development and

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<sup>25</sup> United Nations. World Urbanization Prospects. 2012.

<sup>26</sup> Statistics Yearbook PRC.2012.



structural change.

## **Sector Road Map**

### **1. Sector Performance, Problems, and Opportunities**

5. **Education funding** in the PRC has been about 3% of GDP, being low compared OECD member countries average of 5.8%. In 2012, the government announced that fiscal expenditure on education would reach 4.0% of GDP. There is a political will and commitment by the government to increase investment into education with a vision to transform the country's growth pattern and boost consumption. However, the overall quality of the PRC's human resources is still low, compared to more developed countries.

6. Until relatively recently, the emphasis within the education has been on academic learning with the system geared to cultivating large volumes of well-educated university graduates. The lion's share of tertiary education resources have been and continue to be directed to the universities, with secondary education geared to supply the universities. Specialist secondary schools and technical colleges at tertiary level have been under-resourced and they have also suffered from the widespread public perception that a good education must mean a university education; and that any university education must be preferable to any other form of tertiary education such as TVET. This, despite that fact that in recent years large numbers of university graduates have found it difficult or impossible to get jobs which in any way meet their aspirations. Thus while the economy has been generating large numbers of jobs, these jobs have not been of the type the education system is geared towards or in most cases that have required high education levels.

7. Continuing large scale urbanization and the ambitious plans for economic transformation create both a challenge and an opportunity for the education sector, and especially so the TVET sub-sector. The PRC Government now accords great importance to TVET, and regards TVET as the essential foundation for the PRC economic and social development. However, the processes of urbanization, economic transformation, and changing demographics do not just create a demand for skilled manufacturing and service industry workers. These processes are creating an increasing demand for improved public services, and especially so in the health sector due to the aging population and rising public expectations for improved health care. The traditional elderly-support ratio is projected to decline drastically from 9 persons in 2010 to 2.5 persons by 2050.<sup>27</sup> This will put pressure on provision of elderly care, including meeting the long-term health care for the elderly. Additional services will be required, including the provision of greater numbers of qualified health staff such as nurses for elderly care and local community health centers.

8. Relative to developed countries children in the PRC start their compulsory education relatively late when aged 6 years. The potential importance of formal preschool education and the influence it has in later life for breaking intergenerational cycles of poverty and addressing social inequality has been largely overlooked and preschool education has therefore been under provided for in education budgets. Government policy makers in the education sector have rethought the level of priority to be given to pre-school education and the Twelfth Five-Year Plan includes specific targets for kindergarten enrollment. This will require a large increase in the number of well-trained specialist pre-school kindergarten teachers.

### **2. Government's Sector Strategy**

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<sup>27</sup> United Nations Population Division. World Population Prospects: The 2004 Revision.

9. The Government's Twelfth Five-Year Plan (2011–2015) outlines measures to establish “a sound and sustainable basic public service system”, with a focus on public education and medical care. The plan is supported by recent reforms in the education and health sectors, which focus on providing equitable access to opportunity through the provision of universal kindergarten and improved primary health care services in rural and urban areas. The National Medium- and Long-term Education Reform and Development Plan (2010–2020) calls for preschool education to be developed so that by 2020, one-year preschool will become the norm, two-years universalized, and three-years popularized.<sup>28</sup> The priorities in national health care reform include strengthening primary health care services and the grassroots health workforce. The five-year plan also responds to the challenge of an aging society by aiming to create improved elderly care and more qualified personnel.<sup>29</sup> In 2010, there were 178 million people over the age of 60, and it is estimated that by 2050, the number is expected to exceed 480 million. There is an urgent need to expand elderly care services with well-trained personnel and it is envisaged that more than 5 million new jobs in elderly care services will be created.

10. The National Medium- and Long-term Strategy on Education (2010–2020) also contains sets up goals and reforms to better align the education system with the demand of the inclusive and sustainable growth. One of the main targets is for 28.0% of the total labor force to be highly skilled by 2020 and identifies TVET as one of the key priorities on the education reform agenda. There is also a target to train more than 8 million high-skilled workforce in social development key areas including education and medical and health industries<sup>30</sup> by 2020.

11. The main elements of policy reform that have emerged over the past decade include expansion of TVET, increasing access and equity in TVET, modernizing curriculum and teaching methods, strengthening the role of employers in TVET, and management reforms. All of which will be supported under the proposed project.

12. In 2006, the Ministry of Education (MOE) initiated the “Top 200 National Demonstrative Colleges Project”. Up to 2012 demonstrative colleges have made notable progress by fostering industry involvement, design and delivery of jointly programs, work-study training models, enrollment pilots, social service ability, and sharing high quality education resources across the region. Based on this experience, the government has made a commitment for establishing a world-class TVET system by 2020. This should lead to a sustainable, more relevant, connective, modernized and multi-dimensional TVET. The focus is to be on social and professional needs, and systematic training of individuals through a demand driven TVET system. Thus the whole TVET Sector needs to strengthen linkages with industry to make teaching-learning experiences, curriculum development and implementation, assessment and the learning environment increasingly authentic and demand driven.

13. Other national and regional policies and sector plans underpinning the specific project interventions and choice of project schools include (i) the *Early Childhood Education Policy 2010*; (ii) the *Three-Year Action Plan for Preschool Education Development in Guangxi Zhuang Autonomous Region (2011–2013)*; and (iii) the *Plan of Medical Teaching Programs (Secondary School) to Promote Training of Assistant Medical Practitioners in Rural Areas (2011-2015)*.

14. The PRC Government's economic opening policy has been and will continue to be the catalyst for reform in every national endeavor, including TVET management

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<sup>28</sup> Overall, preschool students in the PRC will increase from 26.58 million in 2009 to 40 million by 2020.

<sup>29</sup> PRC. 2010. The State Medium- and Long-term Guideline for Education Reform and Development (2010–2020). Beijing. Chapter 36.

<sup>30</sup> J. Bo. 2012. *China's TVET: Reform and Opening-up*.

and administration at systemic and institutional levels. Multi-dimensional strategies exist for fostering international collaboration and exchange including government and non-government organizations, agencies and institutions. An example is the work of the China Education Association for International Exchange (CEAIE), which was established in 1981. With some 60 CEAIE programs and activities, extending the international dimension of TVET has always been at the forefront. This includes Vocational Education Leadership Training Program, TVET Excellent Teacher Exchange Program, and Chinese-Foreign Joint Advanced Skill Training Program.<sup>31</sup>

15. TVET in PRC is provided under the governance of MOE being responsible for vocational education and the Ministry of Human Resources and Social Security (MOHRSS) being responsible for vocational training. MOE oversees secondary vocational schools (SVS) and tertiary vocational colleges (TVC) at post-secondary level. SVS mostly offer 3-year programs and graduates receive a diploma and either enter the labor market or progress to TVCs. TVCs, also referred to as “polytechnics”, offer 2–3 year programs leading to a diploma in occupational and technical disciplines. TVCs provide an important post-secondary education and training service over 300 different occupational specializations. Entry requirement to SVS is the successful completion of the junior high school (grade 9); admission to TVCs is based on performance in the national higher education entrance examination.

16. MOHRSS is responsible for vocational training in skilled worker schools and senior skilled workers schools at the secondary level. These institutions provide 2–3 year certificate courses specially designed for the state occupational qualification of skilled workers. Workplace training (i.e. student internships lasting from 1 semester to 1 year) is an integral part of training programs. A national skill testing system exists for vocational qualifications under MOHRSS with open access.

17. **TVET funding** is the responsibility of local governments, which provide more than 80.0% of total public spending on education. In comparison to basic, general secondary and higher education the government has until recently under-invested in TVET. Based on international experience, TVET needs specialized facilities, plant and equipment that is more expensive per student compared with the needs of general education. However, until now expenditure for TVET in PRC is lower per student than that for general senior secondary schools and higher education. Details are provided in the project financial analysis.

18. **Curriculum and teaching-learning quality.** TVET curricula are generally in need of modernization as to reach international competency-based curricula (CBC) standards. However, educators undertaking curriculum development have not had an opportunity for specific training in modern curriculum development or teaching-learning methods. The curriculum development process still relies to a large extent on technical work tasks and processes rather than on transferable skills employability skills. CBC requires the engagement of TVET institutions with enterprises to identify and develop competencies. TVET institutions need to receive training and assistance to develop effective CBC, teaching and learning materials and course delivery modes, and to monitor and assess curricula by involving industry.

19. Generally, current teaching-learning methods are based on teacher centered rather than student centered methods. Most lecturers and instructors in TVET institutions have limited up-to date workplace experiences. The adoption of CBC demands effective teacher training and requires TVET institutions to provide training for the range of professional skills required by teaching staff to provide effective student-centered CBC. Lack of and/or obsolete equipment to simulate a work place for practical demonstration and application impedes on the quality of teaching-

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<sup>31</sup> China Education Association for International Exchange, 2011.

learning processes.

20. **Curriculum and teaching-learning quality: kindergarten.** The quality of teaching staff varies, and a significant number of kindergarten teachers are not certified and/or under-qualified. In 2011, only 600 preschool teachers graduated in GZAR. The biggest bottleneck faced by preschool education establishments in Nanning has been the critical shortage of qualified teachers. There is an urgent need to increase the numbers of kindergarten teachers and to enhance quality of training, both pre-service training and in-service through continued professional development.

21. **Curriculum and teaching-learning quality: nurse and elderly care training.** Curriculum quality of elderly care nurse education is also in need of improvement. This requires curriculum innovation, flexible delivery modes, student-centered teaching-learning methods, authentic assessment, theory-practice integration, and inclusion of professional ethics and cross-cutting issues. There is a need to modernize the existing pre-service training and to extend it to include continued professional development, bridging programs for under-qualified staff, and refresher courses for individuals re-entering the profession after career gaps.

22. **Curriculum and teaching-learning quality: rural health practitioners.** There is lack of capacity in public health and teaching/ training for rural doctors. The lack of rural health practitioners led to a recent formulation of a national policy to train rural health assistant practicing physicians at secondary vocational schools led to public health system reform, new policy and work demands. Currently, traditional theory based training methods and models are used to teach students, with an emphasis on clinical medicine and little on public health. Shifting the training sites from county hospitals to township hospitals, village clinics and rural communities poses new opportunities and challenges.

### **3. ADB Sector Experience and Assistance Program**

23. This project is only the second ADB loan financed project in PRC, the first being the Hunan Technical and Vocational Education Demonstration Project approved by the Board in June 2013. Therefore, ADB Sector experience is very limited in the PRC; although lessons have been learned from similar projects in other developing member countries and through consultations with the World Bank on their project experience in the sector. These lessons have been incorporated into the project design. The lessons learned include (i) actively involving representatives of industries in identifying occupational areas that are in demand, developing competencies for the occupational areas, and working with the project TVET institutions to develop modular, competency-based/outcomes-based curricula and learning materials; (ii) creating pathways to further education by establishing training programs that articulate with entry requirements for advanced programs; (iii) building a learning culture to capture lessons from experience for future policy and program development through mechanisms, such as training bases and tracer studies; and (iv) establishing a robust project monitoring and evaluation system. Furthermore, earlier ADB technical assistance projects in TVET and health also identified the need to improve training and curriculum development, develop continuing learning, and industry partnerships.<sup>32</sup>

24. **Strategic fit.** ADB's involvement in TVET is justified on basis of the ADB's PRC country partnership strategy (2011–2015)<sup>33</sup> and national level policy dialogue, which has drawn high level support for ADB involvement as a catalyst for sector

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<sup>32</sup> TA 4868-PRC: Technical and Vocational Education Development and TA 4931-PRC: Rural Health Service System.

<sup>33</sup> ADB. 2012. *Country Partnership Strategy: People's Republic of China, 2011–2015*. Manila.

reform and modernization. The project supports ADB's education policy and sector strategies and, as documented above, key elements of the PRC's Twelfth Five-Year Plan, which prioritizes development of high-quality human resources, increased scientific and technological innovations, and acceleration of educational reform. Further, TVET related projects in the PRC are in the early stages of development in Baise, GZAR and in Shanxi Province.

3. Focusing on kindergarten and nursing education and related teacher development, it is envisaged that this project will be a catalyst for developing and disseminating 'best practices' suitable for adaptation in the PRC and also potentially in ASEAN countries. More specifically, the project will assist the government (as reflected in the government policies) to improve quality and relevance of TVET provision for two critically important public services, and align these with industry demands. The project will actively involve representatives of industries in the identification of current and future employer needs, in developing competencies for those needs; and in working with the project TVET institutions to develop modular, competency-based curricula and learning materials.

#### Appendix 4: CONTRIBUTION TO THE ADB RESULTS FRAMEWORK

No.	Level 2 Results Framework Indicators (Outputs and Outcomes)	Targets	Methods / Comments
1	Students benefiting from new or improved educational facilities	5,850 new students annually	School admissions data
2	(number) Male / Female*  Learning facilities built or upgraded	NVTs: (i) Teaching facilities, (6,400 m <sup>2</sup> ); gymnasium (9,900 m <sup>2</sup> ); library (10,700 m <sup>2</sup> ); art building (10,300 m <sup>2</sup> ); experimental and training building (6,000 m <sup>2</sup> ) kindergarten training base (5,000 m <sup>2</sup> ); landscaping training base (3,000 m <sup>2</sup> ); (ii) living facilities (including dormitory for trainees/ students (2,600 m <sup>2</sup> ); teacher management building (2,600 m <sup>2</sup> ); No.3 dormitory (4,850 m <sup>2</sup> ); No.4 dormitory (4,850 m <sup>2</sup> ); No.5 dormitory (4,140 m <sup>2</sup> ); No.6 dormitory (4,140 m <sup>2</sup> ) and other facilities (including performance platform (290 m <sup>2</sup> ); security guard room (120 m <sup>2</sup> ); first floor open space (4,020 m <sup>2</sup> ). NHS: experimental building (52,541 m <sup>2</sup> ); library and office building (56,542 m <sup>2</sup> ); auditorium (1,776 m <sup>2</sup> ); A3 and A4 teaching buildings (10,291 m <sup>2</sup> ); underground structure (13,813 m <sup>2</sup> ).	Project monitoring data
3	Students educated and trained under improved quality assurance	5,850 new students annually	School admissions data
4	systems (number) Male / Female*  Teachers trained with quality or competency standards (number) Male / Female*	282  At least 80% of teachers at both schools trained in student centered teaching and learning and competency based curriculum development(at least 50% female)	Project training monitoring documentation

Source: Asian Development Bank estimates



## **Appendix 5: DEVELOPMENT COORDINATION**

### **A. Major Development Partners: Strategic Foci and Key Activities**

1. Since 1992, the Asian Development Bank (ADB) has provided over 30 loans totaling more than \$4 billion to the People's Republic of China (PRC) for environmental improvement and infrastructure projects. The ADB has also provided over \$60 million for more than 90 technical assistance studies on policy reform, institutional strengthening, environmental management, poverty reduction and project preparation.

2. Guangxi Zhuang Autonomous Region has signed agreements with ADB and the World Bank to borrow foreign loans financing roads, urban development and environmental improvement projects, with contracted amount of \$930 million from ADB from 2001 to 2012 and \$2.935 billion from the World Bank from 1988 to 2012, as shown in **Table 1** and **Table 2**, respectively.

**Table 1: Asian Development Bank Assistance for Infrastructure and Environmental Improvement in Guangxi**

No.	Project Name	Date of Approval	Amount (\$ million)
1	Loan 1851-PRC: Guangxi Roads Development	2001	150.00
2	Loan 2094-PRC: Guangxi Roads Development II Project	2004	200.00
3	Loan 2657-PRC: Guangxi Southwestern Cities Development Project	2010	150.00
4	Loan 2345-PRC: Western Guangxi Roads Development Project	2007	30.00
5	Loan 2491-PRC: Guangxi Wuzhou Urban Development Project	2008	100.00
6	Loan 2239-PRC: Guangxi Nanning Urban Environmental Upgrading	2006	100.00
7	Loan 2821-PRC: Guangxi Beibu Gulf Cities Development Project	2011	200.00
	Total		930.00

Source: Asian Development Bank.

**Table 2: World Bank Funded Loan Projects in Guangxi**

No.	Project	Date of Approval	Foreign Loan (\$ million)
1	The Second Liuzhou Environment Management Project	2011	150
2	Nanning Urban Environment Project	2010	100
3	NanGuang Railway Project	2009	300
4	Guangxi Integrated Forestry Development and Conservation Project	2006	100
5	Eco-Farming Project	2008	120
7	Poor Rural Communities Development Project	2005	100

No.	Project	Date of Approval	Foreign Loan (\$ million)
8	Liuzhou Environment Management Project	2005	100
9	Fourth Inland Waterways Project	2004	91
10	Basic Education in Western Areas Project	2003	100
11	Guangxi Highway Project	2000	200
12	Guangxi Urban Environment Project	1998	92
13	Inland Waterways Project	1995	210
14	Southwest Poverty Reduction Project	1995	247
15	Basic Education in Poor and Minority Area Project	1994	100
16	Agricultural Support Services Project	1993	115
17	Rural Water Supply and Sanitation Project	1992	110
18	National Forestation Project	1990	300
19	Rural Sector Adjustment Loan (RSAL) Project	1988	300
	Total		2,835

Source: World Bank Group.

3. Since 1991, Nanning has benefitted from four World Bank loan projects, one ADB loan project<sup>34</sup> and nine significant bilateral loans from the Governments of Japan, Spain, Austria, and Israel, as well as the Nordic Investment Bank. These projects have included interventions in environmental improvement (including wastewater and solid waste management), water supply, river regulation, agriculture, health, urban safety (fire control), information systems and education.<sup>35</sup>

4. Lessons learned from previous development projects that are applicable to this project include (i) the project design should link up closely with the urban master plan and socioeconomic development plan of the project area; (ii) the project scope must be well-defined and enjoy strong local government commitment; (iii) changes in project design should be avoided so as not to disrupt implementation progress; (iv) a strong project management organization able to provide close coordination is a major factor contributing to the smooth implementation of a project; and (v) frequent change of the project management office staff should be avoided and necessary trainings should be considered and delivered.

## **B. Institutional Arrangements and Processes for Development Coordination**

5. ADB is committed to sharing sector information and experiences in partnership with its developing member countries and other development agencies, and collaborates with a large number of multilateral and bilateral aid agencies. In line with its support for the 2005 Paris Declaration and the 2008 Accra Agenda for Action, ADB has been harmonizing its policies, procedures and practices with its key

<sup>34</sup> Loan 2239-PRC: Guangxi Nanning Urban Environmental Upgrading, \$100million approved in 2006.

<sup>35</sup> Upgrading of training bases for the Nanning College of Vocational Technology (NCVT), €4.98million, Government of Spain, 2006—2007. This loan was used to successfully upgrade the equipment used for seven training bases at NCVT, which is a tertiary level technical and vocational education and training institution in Nanning.



development partners through parallel implementation structures, technical working groups and joint missions. ADB supports through participation in world forums global and regional efforts to reduce poverty, enhance economic development, and to provide humanitarian aid to the poorest.

6. In the PRC, the central government mainly coordinates development assistance. All the development partners are requested to align their operations to support the implementation of a national development strategy as set out in the PRC's Twelfth Five-Year Plan, 2011–2015 for social and economic development and approved by the People's Congress. ADB's resident mission in the PRC also plays a key role in harnessing lessons learned in project design, implementation, and share these lessons with both PRC Government and other development partners (all of which have resident missions in Beijing) through regular exchanges.

5. At the Guangxi regional level, the regional development reform commission and regional Finance Bureau both exercise development coordination. These bodies receive requests for development assistance from local governments, match needs to the priorities and programs of the different development partners, hold consultations with those partners to establish mutual interest, and make requests to the national level for projects to be included in the relevant country support program.

6. There are separate project management offices established for various ADB, World Bank, and other foreign-funded projects within Guangxi. The various project management offices at regional level and city level maintain close coordination and share their respective experiences with one another.

#### **C. Achievements and Issues**

7. Coordination with major development partners has been strengthened since 1992 to support the PRC five-year plans, strategic master plans, public awareness and education, financial and institutional strengthening, achieving millennium development goals, and other experience relevant to the achievement of sustainable urban development and economic growth.

#### **D. Summary and Recommendations**

10. The project team will coordinate with other development partners during project implementation. Strengthening development coordination in the PRC is expected to minimize transaction costs, maximize responsiveness, solve policy issues more systematically, provide greater support for institutional strengthening and capacity building and increase accountability to achieve greater development impact.

## Appendix 6: SUMMARY ECONOMIC ANALYSIS

### A. The Project

1. The project will help improve the capacity and effectiveness of social services focused TVET in Nanning. Specifically, it will support improvement of capacity in providing TVET training as well as upgrade buildings, campus facilities and equipment of Nanning Health School (NHS) and NVTs. This is envisioned to improve the quality of training in these TVET schools and qualifications of graduates. Over a 25-year period, a total of 31,028 students consisting of 17,570 nurses, 1,852 rural doctors and 16,720 kindergarten teachers will successfully graduate and join the active work force. This is expected to improve the delivery of public social services in Nanning.

2. The project is the second ADB-financed TVET investment project in the PRC, and will play a demonstration role for the sector and local governments to provide quality public social services.<sup>36</sup> The project has four components with associated outputs.<sup>37</sup>

**Component 1: Capacity strengthening of TVET institutions** will improve the quality of TVET training by focusing on (i) curriculum development, (ii) teacher training, (iii) building regional cooperation and strategic TVET and industry partnerships, (iv) developing elderly care curriculum, and (v) developing education leadership. This component is intended to improve the capacity, relevance and effectiveness of teaching and learning.

**Component 2: Implementation of pilots** will assist NVTs in establishing a model kindergarten, including state-of-the-art kindergarten teaching methods based on “best international and national practices and experiences”, including mentoring, monitoring, provision of educational and pastoral care of children, assessment, leadership, and management. The project will likewise support the establishment of rural training base(s) through (i) selection of sites based on the criteria determined in consultation with Nanning Health Bureau (NHB) and NHS; (ii) identification of training needs and demands and existing gaps; (iii) strengthening the existing curriculum; (iv) development of teaching-learning methods and materials; and (v) development of management and entrepreneurial capacity through in-service, pre-service, and continued professional development.

**Component 3: Upgrading of buildings, campus facilities and equipment of TVET institutions** will involve construction of new buildings and auxiliary facilities for the upgraded NHS and NVTs as well as support the acquisition and upgrading of teaching, learning, special purpose equipment, library furniture/equipment, physical education equipment, and laboratory equipment to support student enrollment, teaching and experimental activities. The component will provide the required facilities and equipment to support interventions for improving TVET capacity of the two schools and their ability to effectively provide training to more students.

**Component 4: Project management support and implementation** will involve strengthening the administration, supervision and management of project implementation activities by giving technical assistance and training to the project management office and the implementing agencies.

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<sup>36</sup>. The first project is TA 7978-PRC: Technical and Vocational Education and Training Demonstration Project (Hunan), approved in December 2011.

<sup>37</sup>. The outputs are detailed in the project design and monitoring framework.

3. These project interventions are expected to improve the quality of training for 5,850 students annually, including an additional 1,850 students that can be accommodated due to expanded facilities. Moreover, the strengthened capacity of the TVET institutions will be able to sustainably and effectively produce well-trained skilled workers with high potential for employment in the health and vocational sectors. Greater industry involvement and participation in program planning and development of competency-based standards and competency-based curricula will likewise ensure the development of demand-driven skills training. Improved cooperation among the TVET institutions, industry and government agencies will allow the TVET system to be more responsive to the changing needs of employers, and be a facilitator of public services reform and improvement.

## **B. Economic Analysis<sup>38</sup>**

4. The conventional economic viability analysis, with the use of economic internal rate of return (EIRR) calculation is applied in determining the viability of NHS. Analysis for NVTs utilizes a simple cost-benefit analysis, which merely estimates the net present value of the annual stream of economic benefits derived from investments made in preschool education. The annual stream of economic benefits is estimated by a factor on the annual stream of economic costs over a 25-year period. Three scenarios of low, medium and high rates of return were estimated by applying a range of estimated rates of return on investments on early child care and education (ECCE) that have been generated by three major studies conducted in the United States of America (USA).<sup>39</sup> This reliance on the results of other studies is due to difficulty in quantifying the potential economic benefits of ECCE derived over a long-term period.

5. **Major assumptions in Nanning health school's economic analysis.** The quantified economic benefits accruing to the project investments of NHS are based on (i) generated income earnings of graduates over the life of the project, (ii) reduced cost of medical treatment due to illness resulting from improved delivery of medical services by better skilled nurses and rural doctors, and (iii) reduced losses in productivity due to illness.

6. The main assumptions used in the economic analysis include (i) capital investment is spread across the duration of the project implementation of five years; (ii) incremental operational costs were assumed to be 2.0% of the total capital cost; (iii) replacement of equipment is assumed to be carried out every five years; (iv) government budgetary allocation for student subsidy is estimated at CNY3,080/student/year, consisting of expenses for books (CNY600/student/year), room and board (CNY400/student/year), and tuition (CNY2,080/student/year); (v) project benefits will accrue over a period of 20 years, after project implementation; (vi) project life is assumed to be 25 years; (vii) the number of NHS graduates is assumed to remain at its 2018 level throughout the project life;<sup>40</sup> (viii) an incremental

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<sup>38</sup> The economic analysis was undertaken in compliance with the Asian Development Bank's *Guidelines for Economic Analysis of Projects*.

<sup>39</sup> J. MacGillvary and L. Lucia, 2001. *Economic Impacts of Early Care and Education in California*: UC Berkeley Labor Center cites the results of these studies conducted in the states of Michigan, Illinois and North Carolina.

<sup>40</sup> It is conservatively assumed that the project investments will not directly lead to increased graduate numbers. However, according to the projections of the project TVET institutions, there will be an increase in enrolment as a result of the proposed project.

increase of 10% in salaries of NHS graduates is assumed;<sup>41</sup> and (x) a discount rate of 12% is applied in the calculation of the EIRR.

7. **Benefits generated by Nanning health school.** NHS is expected to produce an incremental 933 new graduates annually, consisting of 844 nurses and 89 rural doctors. Over a 20-year period, the NHS graduates are projected generate total incremental income earnings of about CNY558.76 million. This new cadre of nurses and rural doctors will be better trained and more competent in delivering medical services particularly in the rural areas where these services are much needed. A potential of 11.83 million persons,<sup>42</sup> about 9.24 million adults and 2.59 million children,<sup>43</sup> will have access to medical services provided by the new nurses and rural doctors, thereby allowing them to receive proper medical care as well as adequate treatment and effective prevention of various common diseases. Improvement in medical services and delivery is envisioned to significantly reduce the incidence of diseases, especially those related to gastro-intestinal diseases. Disease incidence rate<sup>44</sup> is expected to decline by 50%,<sup>45</sup> from 0.395% (without project) to 0.1975% (with project). The number of persons falling ill annually under the “without project scenario” situation is estimated at 45,609, consisting of 35,632 adults and 9,977 children. Under “with the project” scenario this is expected to decrease to 22,804 persons, about 17,816 adults and 4,988 children. The total annual medical cost, including direct and indirect costs,<sup>46</sup> is expected to decrease from CNY30.82 million to CNY15.41 million. Missed work-days due to illness are estimated at 14.4 days<sup>47</sup> out of a total 288 work-days a year or a loss of about 5% in labor productivity. Benefits from reduced losses in productivity due to missed number of work-days, are expected to be very significant as these will be generated from a broader base of the Guangxi economy. With improvement in health and

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<sup>41</sup> Individuals have to undergo TVET training to qualify as nurses and rural doctors. As individuals without any TVET training, they may only be employed in jobs with low skill requirements and receive a salary lower by 10% compared with the salary that TVET graduates may receive. Therefore, the incremental increase in salary is the difference between the salary of a graduate with TVET training and one who did not undergo such training.

<sup>42</sup> Based on 13 nurses and doctors per 10,000 persons, Guangxi Zhuang Autonomous Region information page. [old.cpwf.org.cn/en/30Province1999-guangxi.htm](http://old.cpwf.org.cn/en/30Province1999-guangxi.htm)

<sup>43</sup> Guangxi Statistical Year Book 2012 indicated that of the total population, adults and children account for 72% and 28%, respectively. The source says that 13 nurses and doctors can potentially reach 10,000 persons. So if every year a total of 800 nurses and doctors graduate, there will be about 61 teams of nurses and doctors (comprising 13 members) that can potentially reach 610,000 persons/year (61x10,000). So over 20 years, about 12,200,000 consultations that could be approaching 6-10 million people.

<sup>44</sup> Disease incidence rate is based on the weighted average of the incidence rates for common illnesses, such as typhoid (0.01%/100,000 persons), diarrhea (0.051%/100,000 persons), and respiratory ailments (0.07%/100,000 persons). Sources: Epidemiological analysis of bacillary dysentery in Guangxi (1998–2007), Guangxi Zhuang Autonomous Region (2004–2009), Infectious Diarrhoea Epidemic Characteristics, [http://d.wanfangdata.com.cn/periodical\\_zgrdyx200902057.aspx](http://d.wanfangdata.com.cn/periodical_zgrdyx200902057.aspx) and [http://nurse.9med.net/upload/pdf/30/1804/103345\\_3719.pdf](http://nurse.9med.net/upload/pdf/30/1804/103345_3719.pdf), respectively.

<sup>45</sup> J. Bunker, 2001. The Role of Medical Care in Contributing to Health Improvements within Societies, *International Journal of Epidemiology*, Vol. 30, Issue 6, pp.1260-1263. The author indicated that the incidence rate of respiratory diseases can be reduced by about 40% with effective medical care. World Health Organization indicated that potential reductions in morbidity as a result of improvements in water supply and sanitation, complemented by effective awareness programs and medical services, are 80-100% for cholera and typhoid, and 40-50% for diarrhea diseases, dysentery and gastroenteritis.

<sup>46</sup> Direct costs include medical treatment, medicines, laboratory tests, transportation, food, lodging and cost of special items, such as herbs. Indirect costs include lost wages due to missed work time by the patient, caregivers and their substitutes as well as productivity losses due to nonmarket activity losses, such as housework. Cost of medical treatment/person/year is based on the weighted average of cost of medical treatment/person/year for typhoid (CNY2, 957.27/person/year), diarrhea (CNY797.70/person/year) and respiratory ailments (CNY250/person/year).

<sup>47</sup> C. Poulos, et al. 2011. Cost of Illness Due to Typhoid Fever in Five Asian Countries, *Tropical Medicine and International Health*. Vol. 16, No. 3, pp. 314-323.

disease prevention among the benefited population, it is envisioned that the number of missed work-days will be reduced by 50% resulting in economic benefits of CNY1, 554.15 million/year.

8. There are other economic benefits, such as (i) upgrading of workers who, despite not participating in the TVET program, nonetheless benefit from the development of curricula and uniform certification standards that will be a central part of the project's efforts; (ii) skills upgrading of non-participants working with TVET graduates; (iii) higher skills and earnings of nurses and rural doctors trained in the training bases; and (iv) the economic value of skills acquired by trainees who do not complete the TVET training course before graduating as these will have the same employment prospects they had prior to training. These benefits are recognized but are not quantified, due to the diffused nature of the benefits, and not included in the cost-benefit analysis. If these benefits had been quantified and included into the analysis, the EIRR would be higher.

9. **Nanning health school economic costs.** Economic costs are at constant mid-2013 prices and measured using the domestic price numeraire method. Specific costs identified are project investments, operating and maintenance, and replacement costs. Traded components are converted into economic prices using a shadow exchange rate factor (SERF) of 1.08.<sup>48</sup> The total cost is estimated at \$48.80 million, from which all price contingencies, taxes and interest charges were excluded. The incremental annual operation and maintenance costs have been assumed to be 2% of capital costs. Government student subsidy, of about CNY3,080/student/year covering tuition fee, cost of books and educational materials, and room and board was included in the economic costs. The value of the foregone wage earnings of student trainees during their enrolment in TVET training is also included in the economic cost estimates.

**Table 1: Nanning Health School Economic Internal Rate of return**

Chang Variable	Percent Change in Variable	Recalculated EIRR	ENPV (12%) (CNY million)	Switching Value	Sensitivity Indicator
1. Increase in costs	43%	12.0%	0.56	43%	0.62
2. Decrease in enrollment	20%	15.9%	84.79	>100%	0.17
3. Increase in costs and decrease in enrollment	20%	13.6%	38.29	32%	0.87
4. Delay in benefits by one year		14.2%	52.49		
5. Decrease in productivity	20%	13.9%	40.07	33%	0.77
<b>Base EIRR<sup>a</sup> =</b>		16.4%			
<b>Base NPV at 12% =</b>		CNY100.53 (million)			
<b>Benefits-cost ratio =</b>		1.52			

Source: Asian Development Bank estimates.

<sup>48</sup> The same SERF was applied for TA 7978-PRC: Technical and Vocational Education and Training Demonstration Project (Hunan), December 2011.



10. **Economic internal rate of return and sensitivity analysis.** The monetized value of the benefits compared with the projected economic costs of NHS yielded base an EIRR value of 16.4% and benefit-cost ratio of 1.52. The sensitivity analysis indicated that the EIRR is not sensitive to changes in costs, enrolment and productivity as the resulting in sensitivity indicator values are all less than one. The EIRR remained greater than 12%, the cut-off rate, under all situations considered under the sensitivity analysis, with corresponding switching values of at least 45% (Table 1).

11. **Benefits generated by Nanning no. 4 vocational secondary school.** Investments in NVTs are intended to improve its capacity and buildings, campus facilities, and equipment for ECCE. There is growing international consensus that ECCE is critical to economic growth.<sup>49</sup> Cost-benefit studies of high-quality ECCE programs have consistently found substantial long-term benefits derived over the course of many years and decades.<sup>50</sup> A study in the PRC<sup>51</sup> indicated that increasing investment in early child development is one of the most cost-effective strategies for breaking the intergenerational transmission of poverty and improving productivity and social cohesion in the long-run. It also improves prenatal care, raise the health status and nutritional standards of young children as well as improve knowledge of mothers and primary caregivers about health, child-care, and nurturing techniques. These benefits, in turn, contribute to strengthening children achieving their full potential as well as enable the country (PRC) to improve its future competitiveness and overcome the challenges it faces from an aging population and the transition from a middle- to high-income economy. It has also been observed that at-risk students who attend preschool are less likely to (i) engage in criminal behavior as teenagers or adults, (ii) demonstrate antisocial behavior later in school, (iii) receive social services as adults and (iv) engage in high-risk health behaviors such as using drugs or smoking.<sup>52</sup> The effects are positive, long-lasting and largest for the most disadvantaged. There is strong body of research from the USA, which found that ECCE programs for children from disadvantaged backgrounds have improved their (i) cognitive, social, and emotional development, (ii) readiness for school and performance, and (iii) chances to achieve better educational outcomes, such as test scores, grade retention, high school graduation, and, later in life, better labor market outcomes and reduced criminal activity.<sup>53</sup>

12. Other benefits are lower criminal justice system costs, reduced welfare costs, savings for crime victims and savings on school remedial services budgets. A study in Alaska, USA indicated that ECCE increased high school graduation rates by 29%, college attendance by 20%, decreased crime incidence rate by 70%, decreased welfare dependence by 20%, and increased per capita income due to better employment.<sup>54</sup> ECCE also allows parents, especially mothers, to participate fully in the labor market, subsequently increasing economic output, jobs, and tax revenue as

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<sup>49</sup> S. Boocock. 1995. Early Childhood Programs in Other Nations: Goals and Outcomes. *The Future of Children, Long-term Outcomes of Early Childhood Programs*, Vol. 5, No. 3.

<sup>50</sup> Pennsylvania State Education Association, Invest in Early Childhood Care and Education, The Power of Great Education: PSEA's 20/20 Vision for the Future, January 2010.

<sup>51</sup> Kin Bing Wu, Mary Eming Young, and Jianhua Cai, *Early Child Development in China*, World Bank eLibrary, July 2012.

<sup>52</sup> Pennsylvania State Education Association, Invest in Early Childhood Care and Education, The Power of Great Education: PSEA's 20/20 Vision for the Future, January 2010.

<sup>53</sup> Oireachtas Library and Research Service, *Early Childhood Education and Care*, No. 4, April 2012.

<sup>54</sup> McDowell Group Report, Step-up Early Ed and Child Care – A Summarized Economic Impact Report on Early Education and Child Care Services in Alaska, July 2006.

a result of the multiplier effect that increased spending has on other industries.<sup>55</sup> Increased participation of parents in the labor market increases purchasing power and spending which, in turn, creates increased demand for goods and services as well as jobs, both direct and indirect, in the ECCE sector and other industries. These studies have shown that ECCE investments have a ripple effect through the economy have been found to have an economic impact comparable with other government investment made to further economic development.

13. Analysis of the costs and benefits of ECCE have found impressive returns on investment to the public, ranging from \$1.73<sup>56</sup> to \$7.16<sup>57</sup> per dollar invested. These estimates of rates of return on investment are within the range estimated by the RAND Corporation<sup>58</sup>, which indicated that each dollar invested in high-quality early childhood returns to society about \$1.80-\$17, depending on the nature of the early childhood program. Based on these results, the potential benefits generated by investments in ECCE, represented by investments in NVTs, are calculated and presented in Table 6. For the analysis, three estimates of return on investments, which were derived from the studies, are applied, to determine the benefits generated by investments in NVTs. These rates (\$1.73 for low, \$7.16 for medium, and \$17 for high) were discounted by 50% to reflect the current level of ECCE develop in Guangxi, which is still at its early stage. For each scenario, economic costs<sup>59</sup> were projected over a 25-year period and multiplied by the assumed rate of return for each scenario to calculate the stream annual economic benefits. The net present value of the estimated annual stream economic benefits for each scenario was calculated at a discount rate of 12% (Table 2).

**Table 2: Estimates of Benefits from Nanning No. 4 Vocational Secondary School**

Item	Low	Medium	High
Investment Net Present Value (NPV) at 12% (\$ million)	42.21	42.41	42.41
Estimated economic benefits NPV at 12% (\$ million)	36.68	151.82	360.47
BCR	0.87	3.58	8.50

BCR (benefits-cost ratio), NPV (net present value)  
Source: Asian Development Bank estimates.

<sup>55</sup> MacGillvary and Lucia indicated that it is usual for women to have their careers disrupted because of child care failure, i.e., care that is unreliable, unaffordable, or just unavailable. Period of non-employment usually lead to lower wages because of "skill depreciation", loss of seniority, and sometimes being less likely to receive further training or mentoring due to questions of commitment.

<sup>56</sup> Leslie J. Calman and Linda Tarr-Whelan, *Early Childhood Education for All: A Wise Investment*, Recommendations arising from "The Economic Impacts of Child Care and Early Education: Financing Solutions for the Future", a conference by Legal Momentum's Family Initiative and the MIT Workplace Center, April 2005.

<sup>57</sup> J. A. Temple and A. J. Reynolds, *Benefits and Costs of Investments in Preschool Education: Evidence from the Child-Parent Centers and Related Programs*, Economics of Education Review, 26:126-144 as cited by MacGillvary and Lucia, August 2011.

<sup>58</sup> On May 14, 1948, Project RAND a research outgrowth of World War II separated from the Douglas Aircraft Company of Santa Monica, California, and became an independent, nonprofit organization. Adopting its name from a contraction of the term *Research and Development*, the newly formed entity was dedicated to furthering and promoting scientific, educational and charitable purposes for the public welfare and security of the United States.

<sup>59</sup> Project investment costs are at constant mid-2013 economic prices and estimated using the domestic price numeraire method. Other costs included in the analysis are (i) operating and maintenance costs, (ii) replacement costs, assumed to be 2% of capital costs, (iii) government student subsidy, of about CNY3,080/student/year covering tuition fee, cost of books and educational materials, and room and board, and (iv) the value of the foregone wage earnings of student trainees during their enrolment in TVET training.

## Appendix 7: SUMMARY FINANCIAL ANALYSIS

### Introduction

1. The financial due diligence includes (i) a brief overview of the financing of education and technical and TVET, including a brief background on the regulatory and funding framework for TVET and challenging issues and an assessment of the financial position of the NMG and the TVET schools: NHS and NVTs; (ii) a financial sustainability analysis of the NHS and NVTs; (iii) fiscal impact analysis; and (iv) FMA<sup>60</sup> of the main implementing agency, the Xiangsihu Investment and Development Company (XIDC).<sup>61</sup>

#### A. Overview of Policy Framework and Financing of Education and Technical and Vocational Education and Training<sup>62</sup>

2. **Policy Framework.** The Vocational Education Law,<sup>63</sup> 1996, provides the general regulatory framework for TVET in the People's Republic of China (PRC). In support of the Vocational Education Law, the Guangxi Zhuang Autonomous Region Medium- and Long-term Educational Reform and Development Program (2010–2020) aims to strengthen TVET within the region. The long-term policy goal is to help solve the problem of unemployment and socioeconomic inequalities between rural and urban areas, improve the population's welfare, and to promote economic development through urbanization and industrial transformation. A common theme is the need for an up-skilled workforce, which can only be achieved by improving TVET education.

3. **Financing of Education in Guangxi Zhuang Autonomous Region.** GZAR expenditure on education as a percentage of its gross domestic product (GDP) has remained stable at 3.1% over the period 2010–2012, slightly lower than the PRC average (about 3.5% in 2011) and significantly lower than the OECD's average of 5.8%. As a percentage of total government expenditures, education spending has decreased from 15.5% to 13.3% during 2009–2012. GZAR's education expenditure for TVET has been very low, about 9.0%, in 2012, of its total annual education expenditure or about 1.2% of the GZAR's total government expenditure. Table 1 shows trends in education expenditure in Guangxi.<sup>64</sup>

4. **Financing Education in Nanning Municipality.** Nanning's expenditure on education increased from CNY4,363 million in 2009 to CNY8,059 million in 2012 (Table 2). Expenditure on education, as a percentage of Nanning's GDP, was

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<sup>60</sup> The FMA was conducted in accordance with ADB's *Financial Due Diligence: A Methodology Note*, 2009.

<sup>61</sup> XIDC is a stated-owned enterprise in Nanning which is administered by the Xiangsihu Development Zone Committee. XIDC has extensive experience in managing ADB and World Bank projects. Discussions with PMO, XIDC and staff of NHS and NVTs indicated that XIDC will be the main entity to be designated to undertake financial management of project funds during project implementation.

<sup>62</sup> W. Wang. 2010. *Key Highlights of China's Approach to TVET/Skills Development*, Background Note South-South Study Visit to China and India in Skills and Technical and Vocational Education and Training.

<sup>63</sup> *The Vocational Education Law* is supported by the *National Medium- and Long-term Educational Reform and Development Program* (2009), which aims to strengthen the country's human resources to effectively create jobs, solve the problem of unemployment and socioeconomic inequalities among rural and urban areas, improve the population's welfare, and promote economic development.

<sup>64</sup> During the latter part of 2009, the GZAR Government initiated a tuition fee waiver policy for students from financially stressed rural families and for TVET students majoring in agriculture. The total tuition paid by the central and GZAR governments was about CNY0.42 billion under this policy. <http://www.chinanews.com/edu/2011/06-15/3113924.shtml>



estimated at an average of 3.2% over the period 2010–2012, a little higher than PRC's average of 3.1% but significantly lower than OECD's average of 5.8%. As a percentage of total municipal government expenditures, education spending increased from 21.4% in 2009 to 22.5% in 2010, but decreased to 20.8% in 2012. Nanning's expenditure for TVET has been very low and averaging only about CNY625 million/year over the period 2009–2012. This means 2.0%, on average, of NMG annual total expenditure and about 9.6% of the municipality's total education expenditure is spent on TVET.

**Table 1: Trends in the Financing of Education, GZAR, 2009–2012**

Guangxi	2009	2010	2011	2012
Guangxi total GDP (CNY billion)	775.9	957.0	1,172.1	1,300.0
GDP annual growth rate	10.5% <sup>✓</sup>	23.3% <sup>✓</sup>	22.5% <sup>✓</sup>	10.9%
Guangxi Government total expenditure (CNY billion)	162.3	200.8	254.5	296.5
Government total expenditure as % of GDP	20.9% <sup>✓</sup>	21.0% <sup>✓</sup>	21.7% <sup>✓</sup>	22.8%
Guangxi Government education expenditure (CNY billion)	25.1	29.7	36.7	39.5
Education expenditure as % of GDP	3.2%	3.1%	3.1%	3.0%
Education expenditure as % of Guangxi Government total expenditure	15.5%	14.8%	14.4%	13.3%
Guangxi Government expenditure for TVET (CNY billion)	2.3	3.3	3.5	3.6
Expenditure for TVET as % of total Guangxi Government expenditure	1.4%	1.7%	1.4%	1.2%
Expenditure for TVET as % of total Guangxi Government education expenditure	9.0%	11.3%	9.5%	9.0%

Source: Guangxi Statistical Yearbooks

**Table 2: Trends in the Financing of Education, Nanning Municipality, 2009–2012**

Item	2009	2010	2011	2012
Total education expenditure <sup>a</sup> (CNY million)	4,363	5,866	6,927	8,059
Total education expenditure annual growth rate		34.4% <sup>✓</sup>	18.1% <sup>✓</sup>	16.3%
Capital expenditure <sup>b</sup> (CNY million)	837	1,061	1,624	2,383
Capital expenditure annual growth rate		26.8% <sup>✓</sup>	53.1% <sup>✓</sup>	46.7%
Recurrent expenditure <sup>c</sup> (CNY million)	3,526	4,805	5,303	5,676
Recurrent expenditure annual growth rate		36.3%	10.4%	7.0%
Breakdown of recurrent expenditure:				
Pre-school education (CNY million)	42	178	227	372
Pre-school education as % of total recurrent costs	1.2% <sup>✓</sup>	3.7% <sup>✓</sup>	4.3% <sup>✓</sup>	6.6%
Primary and secondary education (CNY million)	3,022	4,085	4,542	4,704
Primary and secondary education as % of total recurrent costs	85.7% <sup>✓</sup>	85.0% <sup>✓</sup>	85.6% <sup>✓</sup>	82.9%
Technical and vocational education and training (CNY million)	329	361	348	345
Technical and vocational education and training as % of total recurrent costs	9.3% <sup>✓</sup>	7.5% <sup>✓</sup>	6.6% <sup>✓</sup>	6.1%
Higher education (CNY million)	84	112	139	147
Higher education as % of total recurrent costs	2.4% <sup>✓</sup>	2.3% <sup>✓</sup>	2.6% <sup>✓</sup>	2.6%
Other recurrent costs (CNY million)	49	69	47	-
Other recurrent costs as % of total recurrent costs	1.4%	1.4%	0.9%	0.0%

<sup>a</sup> University level high education not included.

<sup>b</sup> Capital expenditure includes new goods and civil works and rehabilitation.

<sup>c</sup> Recurrent expenditure includes wages and benefits, subsidies, and services payment.

Source: National Education Expenditure Statistical Book

5. During the period 2009–2012, total expenditure of Nanning Municipality on education increased from CNY4,363 million to CNY8,059 million, an increase of 84.7%, mainly due to significant increases in capital (184.7%) and recurrent (61.0%) expenditures during the period. A breakdown of 2012 recurrent costs, by level of education, indicated that recurrent expenditures on (i) preschools accounted for about 6.6%; (ii) primary and secondary education accounted for 82.9%; and (iii) TVET, about 6.1%.

6. **Financing of Technical and Vocational Education and Training in Nanning.** Total funding of TVET in Nanning increased from CNY4,425 million in 2009 to CNY8,725 million in 2012. Financing of TVET, historically, has been heavily

dependent on financial support from NMG, comprising of 80-85% of total TVET financing. As of 2012, Nanning's TVET schools have been financed largely by municipal subsidies and budgetary allocations (about 80.4%)<sup>65</sup> while the balance is derived from tuition fees (7.6%) proceeds from education surtax<sup>66</sup> (7.9%), and social grants and other sources (4.2%), Table 4.

**Table 3: Financing of Technical and Vocational Education and Training  
Nanning Municipality, 2009–2012**

Item	2009		2010		2011		2012	
	(CNY million)	(%)	(CNY million)	(%)	(CNY million)	(%)	(CNY million)	(%)
Public funds - mainly from Municipal Government	3,605	81.5%	4,972	82.8%	6,134	84.6%	7,018	80.4%
Tuition	328	7.4%	483	8.0%	516	7.1%	659	7.6%
Grants from International donor	-	-	-	-	-	-	-	-
Proceeds from educational surtax	85	1.9%	236	3.9%	288	4.0%	685	7.9%
Grants and investments from private sector	-	-	-	-	-	-	-	-
Social grants	57	1.3%	21	0.3%	14	0.2%	6	0.1%
Other sources (Example - loans, other income sources, etc.)	350	7.9%	290	4.8%	302	4.2%	357	4.1%
Total funding for TVET	4,425	100.0%	6,002	100.0%	7,254	100.0%	8,725	100.0%

Source: National Education Expenditure Statistical Book

## B. Financial Sustainability Analysis<sup>67</sup>

7. A review of the revenue and expenditure flows and funding sources over the period 2010-2012 indicated that NHS and NVTs these schools heavily dependent on annual budgetary allocations from the Nanning Municipal Government. Given the government's policy of providing heavy subsidies for TVET, in line with its overall socioeconomic and national development objectives, it is reasonable to assume that the two project TVET schools will continue to receive at least their current levels of financial support from the government for the foreseeable future.

## C. Fiscal Impact Analysis

8. Analysis indicates the total annual project cost as a proportion Nanning Government's annual expenditure<sup>68</sup> will be significantly small ranging from 0.03% in 2013, increasing to 0.34% in 2014, and decreasing to 0.07% in 2017 (Table 5). The government's annual commitment to the project as a percentage of the total education budget is projected to increase from 0.19% in 2013 to 1.86% in 2014, and decrease to 0.33% in 2017. As a percentage of the government's TVET budget, this is likewise expected to increase from 1.87% in 2013 to 18.5% in 2014, and then decrease to 3.3% in 2017. Financial analysis confirms that the municipal government of Nanning has adequate financial resources and will be able to provide the necessary counterpart funds for the project. Further analysis shows that Nanning

<sup>65</sup> Government budgetary allocations, on a per student basis, is estimated at about CNY2,080/student/year.

<sup>66</sup> Financing for education is augmented by education surtax (1.0%), as specified in the Education Law. In order to accelerate the growth of TVET, the State Council issued a guideline for TVET development during the 11th Five-Year period (2006–2010) which stated that 30% of the education surtax should be used for TVET development. The education surtax is an additional fee imposed on enterprises that pay value-added tax, consumption tax and business tax. It is also imposed on those who pay individual income tax. As specified in the Education Law, the 2005 China Development Committee report states: The Education Fund, introduced in 1987, is raised through a surcharge of 1.5% to 2.0% of the per capita net income of farmers in rural areas; and of 3.0% of the value-added tax, business tax, and consumption tax in urban areas.

<sup>67</sup> Details are presented in the consultant's Detailed Financial Analysis Report.

<sup>68</sup> Based on average annual growths over the period 2010-2012, Nanning Government expenditure grew annually at about 21% while expenditures on education and TVET both grew annually at about 25%. These rates were applied in the projections for the period 2013–2019.

Government has the capacity to cover both annual O&M costs and debt service requirements. As a proportion of total Nanning Government annual expenditure, these account for, at most, 0.02%, or 0.106% of the education budget. Table 4: Fiscal Impact of the Project

Item	2013	2014	2015	2016	2017	2018	2019
<b>Fiscal Impact Analysis:</b>							
Nanning Government expenditure (CNY billion)	46.904	56.701	68.544	82.860	100.167	121.089	146.380
Nanning Government education expenditure (CNY billion)	8.374	10.490	13.140	16.461	20.620	25.830	32.357
Nanning Government TVET budget (CNY billion)	0.846	1.056	1.317	1.643	2.049	2.556	3.189
ADB Project (CNY billion)	0.016	0.195	0.258	0.098	0.068	-	-
- Counterpart funding (CNY billion)	0.008	0.101	0.134	0.051	0.035	-	-
- ADB loan (CNY billion)	0.008	0.094	0.124	0.047	0.033	-	-
% ADB Project to Nanning Government expenditure	0.03%	0.34%	0.38%	0.12%	0.07%	-	-
% Counterpart fund to Nanning Government expenditure	0.02%	0.18%	0.20%	0.06%	0.04%	-	-
% ADB loan to Nanning Government expenditure	0.02%	0.17%	0.18%	0.06%	0.03%	-	-
% ADB Project to Nanning Government education expenditure	0.19%	1.86%	1.96%	0.59%	0.33%	-	-
% Counterpart fund to Nanning Government education expenditure	0.10%	0.97%	1.02%	0.31%	0.17%	-	-
% ADB loan to Nanning Government education expenditure	0.09%	0.89%	0.94%	0.29%	0.16%	-	-
% ADB Project to Nanning Government TVET expenditure	1.87%	18.50%	19.59%	5.95%	3.30%	-	-
% Counterpart fund to Nanning Government TVET expenditure	0.97%	9.61%	10.17%	3.09%	1.71%	-	-
% ADB loan to Nanning Government TVET expenditure	0.90%	8.89%	9.42%	2.86%	1.58%	-	-
<b>Ability to Cover Annual O&amp;M and Debt Service:</b>							
Annual O&M cost (CNY billion)				0.009	0.009	0.009	0.009
Annual loan repayment (CNY billion)		0.000	0.001	0.002	0.003	0.004	0.026
Total annual O&M cost and annual loan repayment		0.000	0.001	0.011	0.012	0.012	0.034
% annual O&M cost and loan repayment to Nanning Government expenditure		0.000%	0.002%	0.014%	0.012%	0.010%	0.023%
% annual O&M cost and loan repayment to Nanning Government education expenditure		0.001%	0.009%	0.068%	0.058%	0.048%	0.106%
% annual O&M cost and loan repayment to Nanning Government TVET expenditure		0.009%	0.089%	0.683%	0.585%	0.485%	1.077%

Sources: Consultant estimates and Nanning Education Bureau.

## V. Financial Management Assessment

9. The executing agency for the project is NMG. A PMO has been established within the Nanning Development and Reform Commission (NNDRC), which is tasked to conduct daily coordination and management for the project preparations and implementation. The executing agency, which has previous experience in the management and implementation of ADB- and World Bank-funded projects, has designated a government-owned company, the XIDC to manage the project's ADB loan proceeds and government counterpart funds.<sup>69</sup> Under the supervision of the PMO, the XIDC will implement, on behalf of NHS and NVTs, the physical components of the project, which account for 94% of the loan. Therefore, focus of the FMA was mainly on the capacity of XIDC to manage this work effectively, including its accounting of project funds (i.e., ADB loan proceeds and government counterpart funds).

10. The FMA<sup>70</sup> indicated that XIDC has extensive experience in managing foreign-financed projects and has already established a financial management system and structure for the project. Staff members with experience in the financial management of ADB and World Bank-funded projects are being assigned to the project. XIDC's accounting system is computerized, follows national accounting standards and has an established system of safeguards to protect assets from fraud, waste and abuse. However, XIDC and the PMO staff managing the project will require further training and support on ADB policies and procedures, including procurement, disbursement and project management. The FMA also confirmed that XIDC strictly follows relevant PRC financial management policies and regulations. It

<sup>69</sup> (i) ADB-funded Nanning Urban Environment Upgrading Project, Kelijiang River Eco-environmental Upgrading Subproject in 2007-2011; and (ii) WB-funded Nanning Urban Environment Project, Fenghungjiang River Eco-environmental Upgrading Subproject in 2009-ongoing. XIDC served as implementing agency for these projects' infrastructure components.

<sup>70</sup> The full FMA is presented in the consultant's Detailed Financial Analysis Report which includes recommendations on capacity building to overcome the specific weaknesses identified during the conduct of the assessment.

has a high level of financial management capability and has extensive experience in managing capital projects. For the project, XIDC will follow No. 13 Regulation on Accounting Method of Projects Financed by the World Bank for Executing Agencies/Implementing Agencies as issued by the Ministry of Finance.

11. XIDC has a strong balance sheet; the company's financial condition over the period 2010–2012 exhibited an increasing trend in total assets and net worth. Over the period 2010–2012, XIDC's total assets increased from CNY3.0 billion to CNY4.91 billion, an increase of about 64%. Its net worth increased from CNY1.8 billion to CNY3.51 billion over the same period, an increase of about 95%. XIDC mainly serves as a funding for NMG projects and is mandated to implement, manage and supervise the construction of publicly funded urban infrastructure, such as buildings, and roads. As such, it relies mainly on government funds for its operations. Annual audit reports indicate that the financial statements are drawn up in accordance with national corporate accounting standards and related regulations; and that the financial statements accurately reflected each year's financial situation, operating results, and cash flow situation.

12. Simplified FMAs were also conducted for each of the two project schools. These assessments indicated that the schools each have adequate financial capacity in terms of staffing, systems and procedures to undertake their defined roles in the project, including operation and maintenance of the project facilities. The schools each have dedicated finance units and follow accounting rules and regulations for public institutions in the PRC, as well as supplementary accounting and financial regulations issued by the PRC Ministry of Education and the Guangxi Regional Education Department. The budgetary and fund allocation systems of the schools follow the government appropriation system, recognizing that the majority of TVET funding is government provided. Similarly, the schools are subject to normal government audit and inspection arrangements in addition to their own self-audit and internal check arrangements.



## Appendix 8: COUNTRY ECONOMIC INDICATORS

	Fiscal Year				
Item	2008	2009	2010	2011	2012
<b>A. Income and Growth</b>					
1. GDP per capita (\$, current)	3274	3599	4257	5228	5850
2. GDP growth (% , constant prices)	9.6	9.2	10.4	9.3	7.8
a. Agriculture	5.4	4.2	4.3	4.3	4.5
b. Industry	9.9	9.9	12.3	10.3	8.1
c. Services	10.4	9.6	9.8	9.4	8.1
<b>B. Saving and Investment</b> (% of GDP, current prices)					
1. Gross domestic investment	44.0	48.3	48.2	48.3	48.8
2. Gross domestic saving	51.1	50.3	51.7	50.9	50.0
<b>C. Money and Inflation</b> (annual % change)					
1. Consumer price index	5.9	-0.7	3.3	5.4	2.6
2. Liquidity (M2)	17.8	27.6	19.7	17.3	18.3
<b>D. Government Finance</b> (% of GDP)					
1. Revenue and grants	19.5	20.1	20.7	22.0	22.6
2. Expenditure and on lending	19.9	22.4	22.4	23.1	24.2
3. Overall fiscal surplus (deficit)	-0.4	-2.3	-1.7	-1.1	-1.8
<b>E. Balance of Payments</b>					
1. Merchandise trade balance (% of GDP)	8.0	5.0	4.3	3.3	3.9
2. Current account balance (% of GDP)	9.3	4.9	4.0	1.9	2.3
3. Merchandise export (\$) growth (annual % change)	17.5	-16.0	31.3	20.3	7.9
4. Merchandise import (\$) growth (annual % change)	18.5	-11.2	38.7	24.9	4.3
<b>F. External Payments Indicators</b>					
1. Gross official reserves (including gold, \$ million in	94.6	132.2	112.7	100.6	100.1

	<b>Fiscal Year</b>				
<b>Item</b>	2008	2009	2010	2011	2012
weeks of current year's imports of goods)					
2. External debt service (% of exports of goods and services)	2.1	2.9	3.6	3.6	"..."
3. External debt (% of GDP)	9.	9.	10.	10.	"..."
<b>G.Memorandum Items</b>					
1. GDP (Yuan billion, current prices) <sup>b</sup>	31404.5	34090.3	40151.3	47310.4	51932.2
2. Exchange rate (Yuan/\$, average) <sup>b</sup>	6.5	7.1	7.1	7.2	7.9
3. Population (million)	1328.0	1334.5	1340.9	1347.4	1354.0

\$=US dollar, GDP = gross domestic product,

Source: Asian Development Bank, World Development Indicators and International Debt Statistics and Internal Revenue Service

## Appendix 9: POVERTY REDUCTION AND SOCIAL STRATEGY

Country:	People's Republic of China	Project Title:	Guangxi Nanning Vocational Education Development Project
Lending/Financing Modality:	Project	Department/ Division:	East Asia Department/ Urban and Social Sectors Division

### I. POVERTY AND SOCIAL ANALYSIS AND STRATEGY

Targeting classification: General intervention

<b>A. Links to the National Poverty Reduction and Inclusive Growth Strategy and Country Partnership Strategy</b>
<p>The proposed project will help improve the capacity and effectiveness of social services by focusing on TVET in Nanning Municipality. It will support TVET capacity building and civil works improvement of NVTS and NNHS, and create a pool of qualified kindergarten teachers and nurses to address current skilled worker shortages and inadequate extension of social services. The project supports the strengthening of TVET to facilitate establishing a sound and sustainable public service system with a focus on education and health services, which is a priority under the PRC Twelfth Five-Year Plan. The National Medium- and Long-term Education Reform and Development Plan (2010–2020) calls for preschool education to be developed so that by 2020, one-year preschool will become the norm, two-years universalized, and three-years popularized. The priorities in the National Health Care Reform include strengthening primary health care services and the grassroots health workforce. Development of TVET to train kindergarten teachers and health workers is urgently needed to meet these goals, and to address rising inequality and intergenerational poverty in order to help improve future competitiveness. The project aligns with the PRC's country partnership strategy of ADB<sup>71</sup> and conforms to ADB's Education Policy and sector operations plan.</p>
<b>B. Results from the Poverty and Social Analysis during PPTA or Due Diligence</b>
<p><b>1. Crucial poverty and social issues.</b> Guangxi Zhuang Autonomous Region (GZAR) is one of the 12 less-developed provinces and autonomous regions in the western part of the PRC. The development of Nanning as the regional urban center has led to rapid urbanization and an annual growth rate of 15.5%. Industrialization has created a rising demand for skilled workers and quality social services to provide balanced social development in rural and urban areas. The Three-Year Action Plan for Preschool Education Development in GZAR (2011–2013) will build, renovate, or expand 6,628 kindergarten schools to increase enrollment to 1.33 million and will need to employ an additional 21,000 new teachers. The ratio of health service providers to patients is also low. In 2010, the national average was 7.6 health personnel per 1,000 urban residents but GZAR has only average of 3.6 health personnel per 1,000 residents.<sup>72</sup> Insufficient coverage and poor delivery of social services perpetuates educational and health disparities and is a contributing factor to rising rural- urban inequalities.</p> <p><b>2. Beneficiaries.</b> Direct beneficiaries of the project are students and staff of NHS and NVTS. Indirect beneficiaries include other TVET institutions in Nanning, Nanning Municipal Government (NMG) including the Health and Education Bureaus, kindergarten students, their parents, and health services clients. The students of NHS and NVTS are mainly female, coming from rural areas (more than 90 %). About 27 % of them are classified as coming from "poor" households. Nearly 100% of students are employed after graduation, and there is a substantial present and future demand for the services provided by the graduates.</p>

<sup>71</sup> ADB, 2012, Country Partnership Strategy: People's Republic of China, 2011–2015. Manila.

<sup>72</sup> Nanning has an average of 5.35 health personnel/1,000 urban and only 0.76 personnel/1,000 for rural residents. Nanning has 23,518 village clinics, of which only 8.7% are public.

<p><b>3. Impact channels.</b> Direct channels: improved quality of TVET training and facilities, employability, industry-school, and international partnerships. Indirect: increased wages, improved social services (kindergarten, health), and health and education outcomes.</p>
<p><b>4. Other social and poverty issues.</b> Access to and affordability of TVET for poor and rural students is being addressed through government subsidy programs, increased outreach efforts by the Nanning Bureau of Education, and expansion of TVET programs across the country.</p>
<p><b>5. Design features.</b> The project focuses on providing quality TVET education for students who are mostly from rural areas, primarily women, and include a large percentage of ethnic minorities. Key design features include (i) development of ethnic minority curriculum in the kindergarten training base; (ii) inclusion of social indicators for analysis in the tracer studies, impact assessment, and the project performance monitoring system; (iii) human resources outreach for recruitment in rural and poor areas; (iv) creation of elderly care curriculum and bridging program for the nursing major; and (v) targets for women's participation in the teacher and management training opportunities.</p>
<p><b>C. Poverty Impact Analysis for Policy-Based Lending NA</b></p>
<p><b>II. PARTICIPATION AND EMPOWERING THE POOR</b></p>
<p>1. Summarize the participatory approaches and the proposed project activities that strengthen inclusiveness and empowerment of the poor and vulnerable in project implementation. Participatory approaches include creation of core teacher training network and process, curriculum development on ethnic minority culture, and development of a human resources strategy with a focus on inclusion in recruitment.</p> <p>2. If civil society has a specific role in the project, summarize the actions taken to ensure their participation. Research institutions will conduct studies on selected TVET topics.</p> <p>3. Explain how the project ensures adequate participation of civil society organizations in project implementation. Direct support in project activities.</p> <p>4. What forms of civil society organization participation is envisaged during project implementation?</p> <p><input checked="" type="checkbox"/> Information gathering and sharing</p> <p><input checked="" type="checkbox"/> Consultation</p> <p><input checked="" type="checkbox"/> Collaboration</p> <p><input type="checkbox"/> Partnership</p> <p>5. Will a project level participation plan be prepared to strengthen participation of civil society as interest holders for affected persons particularly the poor and vulnerable?</p> <p><input type="checkbox"/> Yes. <input checked="" type="checkbox"/> No. Actions included in project design</p>
<p><b>III. GENDER AND DEVELOPMENT</b></p>
<p>Gender mainstreaming category: Effective gender mainstreaming</p>
<p><b>A. Principal issues.</b> Both schools are dominated by female students, with some 98 % representation for the preschool education, 97 % in nursing and some 40 % in rural doctor training. The project provides for career and employment opportunities for a substantial number of students from poor and rural areas and these opportunities are primarily directed to women. The job service areas of kindergarten teachers, nursing and elderly care are all rapidly expanding in response to urbanization and key education and health sector policies to improve coverage and access to early childhood education and health care quality services. The employment rate of graduates from both schools is 100%. Improving the quality of social services TVET will have a substantial impact on creating pathways for women, and especially rural women, to enter the new service driven economy and participate in the social and economic development of Nanning.</p>
<p><b>B. Crucial actions.</b> Gender action plan (GAP) actions include (i) ensuring gender sensitive materials are prepared under the competency-based curriculum development; (ii) providing access to training opportunities for women staff; (iii) development of a human resources outreach program for recruitment in rural areas with an emphasis on addressing gender stereotypes and trying to get more young men to join the kindergarten and nursing programs and young women to join the rural doctors programs; (iv) identifying gender issues to be addressed in curriculum development for elderly care; and (v) ensuring that women have</p>



access to the jobs related to construction activities.
<input checked="" type="checkbox"/> Gender action plan <input type="checkbox"/> Other actions or measures <input type="checkbox"/> No action or measure
<b>IV. ADDRESSING SOCIAL SAFEGUARD ISSUES</b>
A. Involuntary Resettlement
1. Principal impacts. No IR or land acquisition will take place under the project. A due diligence report has been prepared and approved.
2. Strategy to address the impacts. NA
3. Plan or other Actions.
<input type="checkbox"/> Resettlement plan <input type="checkbox"/> Resettlement framework  <input type="checkbox"/> Environmental and social management system arrangement <input checked="" type="checkbox"/> No action
B. Indigenous Peoples
<b>V. ADDRESSING OTHER SOCIAL RISKS</b>
A. Risks in the Labor Market
1. Relevance of the project for the country's or region's or sector's labor market. <input type="checkbox"/> unemployment <input type="checkbox"/> underemployment <input type="checkbox"/> retrenchment <input checked="" type="checkbox"/> core labor standards
2. <b>Labor market impact.</b> Graduates from the NHS and NVTs will help meet the deficit in kindergarten teachers, nurses, elderly care workers and rural doctors for Nanning Municipality and GZAR. Over a 25-year period, a total of 31,028 students consisting of 15,087 nurses, 1,591 rural doctors and 14,350 kindergarten teachers will successfully graduate and join the active work force. This is expected to improve the delivery of public social services in Nanning. Human resources development including tracer studies development is included in the project.
B. Affordability All secondary school TVET students receive free tuition from the Government and special subsidies are given to poor, rural and ethnic minority students.
C. Communicable Diseases and Other Social Risks
1. Indicate the respective risks, if any, and rate the impact as high (H), medium (M), low (L), or not applicable (NA): <input checked="" type="checkbox"/> Communicable diseases L <input type="checkbox"/> Human trafficking <input type="checkbox"/> Others (please specify) _____
2. Describe the related risks of the project on people in project area. Slight risk of communicable disease transmission from construction workers. HIV/AIDS clauses included in contractor bidding documents
<b>VI. MONITORING AND EVALUATION</b>
1. Targets and indicators: Indicators of the design and monitoring framework include targets for women's participation, gender inclusive recruitment and kindergarten with inclusive design features.
2. Required human resources: 6 months of a gender and social specialist is included in project management support.
3. Information in project administration manual: GAP and social action plan are included in the project administration manual, and indicators will be integrated into the project performance monitoring system.
4. Monitoring tools: GAP and social action plan. An impact assessment and tracer studies will be implemented.

## Appendix 10: GENDER ACTION PLAN

Outputs	Action	Indicator	Budget	Responsible Institutions
<b>Output 1: TVET framework and capacity strengthening in project schools in Nanning is built.</b>				
1. CBC and standards developed	(i) Gender specialist to review existing curriculum materials and provide report and briefing on gender issues in the existing curriculum and recommendations for curriculum developers and key staff in school.  (ii) Gender inclusive CBC materials developed.  (iii) At least 40% of teachers participating in curriculum development working group and related activities are women.	(i) Gender report, briefing minutes, and attendance record  (ii) Report on gender issues and examples included in the curriculum materials  (iii) Percentage of female participants involved in working group and activities for curriculum development	Included in the project	Curriculum developers, gender consultant, project TVET consultants, PMO
2. Teacher training	(i) At least 50% trainees trained in student centered teaching methods are women.  (ii) At least 50% of core trainers developed for each school are female.	(i) Percentage of female trainees  (ii) Percentage of female core trainers	Included in the project	NHS, NVTS, PMO, project TVET consultants
3. Regional cooperation and strategic TVET and industry partnerships built	(i) At least 40% of participants (teachers, management) attending international or domestic short-term study tours or training will be women.  (ii) Human resources outreach program on TVET training opportunities in rural areas with special attention to gender issues in career choice (i.e., male kindergarten teachers, nurses, new opportunities in elderly care, etc.)	(i) Percentage female participants disaggregated by school, sex, major, training topic  (ii) Number and kind of awareness raising activities through media, enrollment advertisement and employment guide	Included in the project and NEB's own finance	NHS, NVTS, PMO, gender consultant, project TVET consultants, NEB

<b>Outputs</b>	<b>Action</b>	<b>Indicator</b>	<b>Budget</b>	<b>Responsible Institutions</b>
4. Development of the elderly care curriculum	(i) Consultant team to prepare report on gender issues in elderly care.  (ii) Bridging module created to address rural/urban disparities and facilitate advancement from elderly care worker to nursing.	(i) Report (ii) Module endorsed by NHS. Number of students utilizing bridging module (disaggregated by sex)	Included in the project	NHS, PMO, Project TVET consultants, gender consultant
<b>Output 2: Pilot programs are implemented in Nanning project schools.</b>				
Design and implementation of a pilot rural training base program	(i) At least 80% of nursing students and 30% of rural doctor students trained in RTB are women.  (ii) At least one key trainer in each RTB is female.	(i) Percentage of female nursing students and rural doctor trainees (ii) Numbers of female key trainers.	Included in the project	NHS, PMO, NHB
<b>Output 3: Buildings, campus facilities, and equipment are upgraded.</b>				
Campus facilities, equipment, and buildings upgraded	At least 30% of unskilled jobs generated by the project will be offered to women.	Percentage of unskilled jobs offered to women	Included in the construction budget	XIDC, contractors, NHS, NVTS, PMO
<b>Output 4: Project management support</b>				
Capacity building in project management of the PMO and related stakeholders	(i) At least 40% of PMO staff who will receive training are women. (ii) Inclusion of gender expert on project management support team. (iii) All monitoring and evaluation activities include gender indicators.	(i) Consultant TOR (ii) Gender indicators included in PPMS, tracer studies, and impact assessment analysis	6 person-months of input provided	PMO, project manager, M&E team

CBC = competency-based curriculum, M&E = monitoring and evaluation, NEB = Nanning Education Bureau, NHB = Nanning Health Bureau, NHS = Nanning Health School, NVTS = Nanning No. 4 Vocational Secondary School, PMO = project management office, PPMS = project performance monitoring system, RTB = rural training base, TOR = terms of reference, TVET = technical and vocational education and training, XIDC = Xiangsihu Investment and Development Company

## Appendix 11: ENVIRONMENTAL MANAGEMENT PLAN

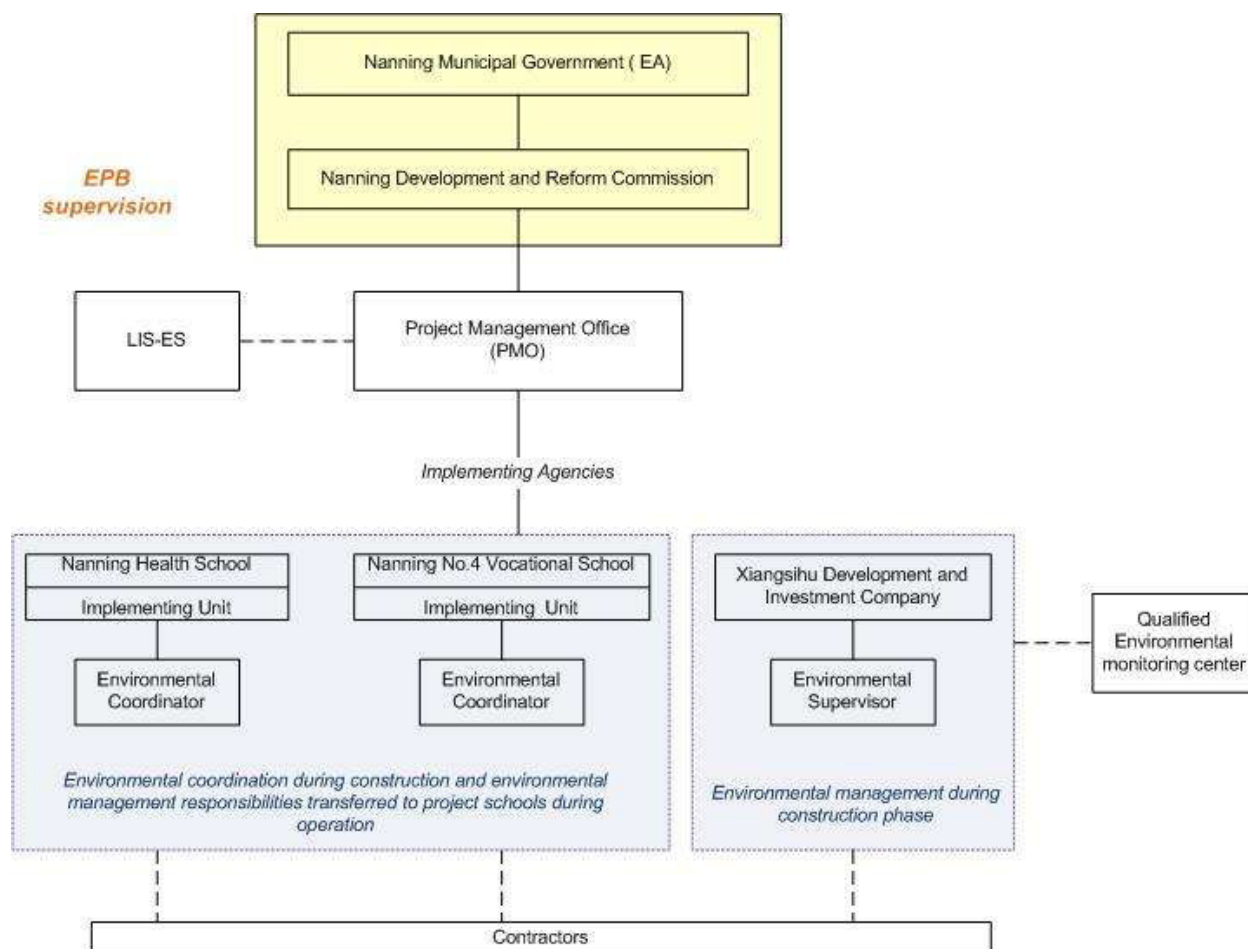
### Introduction

1. This Environmental Management Plan (EMP) is developed for the proposed Guangxi Nanning Vocational Education Development Project (the project) and defines all potential impacts of the project outputs and the mitigation and protection measures with the objective of avoiding or reducing these impacts to acceptable levels. The EMP also defines the institutional arrangements and mechanisms, the roles and responsibilities of different institutions, and procedures and budgets for implementation of the EMP. It also seeks to ensure continuously improving environmental protection activities during preconstruction, construction and operation in order to prevent, reduce or mitigate adverse impacts and risks. The findings of the project Initial Environmental Examination (IEE), the domestic Training and Education Institute of Australasia (TEIA) reports, project preparatory technical assistance (PPTA), and Asian Development Bank's (ADB) review mission discussions and agreements with the relevant government agencies.
2. The EMP will be reviewed and updated at the end of the detailed design in order to be consistent with the final detailed design. The updated EMP will be disclosed on the ADB project website. The updated EMP will also be included as a separate annex in all bidding documents. The contractors will be made aware of their obligations to implement the EMP, to budget EMP implementation costs in their bids, and to develop site-EMPs fully responsive to the EMP.

### A. Institutional Responsibilities

3. Figure EMP.1 defines the organizational structure for the Guangxi Nanning Vocational Education Development Project.
4. As **executing agency**, the **Nanning Municipal Government (NNMG)** will be responsible for the overall implementation of the project, including the EMP and its EMP. The executing agency will have the overall responsibility for coordinating project implementation in the project schools and organizing provincially managed activities.
5. NMG has established the **Nanning project steering committee (PSC)**, led by the Vice Mayor of Nanning Municipality, including high level officials from Nanning Bureau of Environment (BOE), BOH, BOF, Nanning Development and Reform Commission (NNDRC) and the Bureau of Environmental Protection (BEP) to: (i) provide overall project direction and any required policy guidance, (ii) oversee the preparation and implementation of the project, (iii) provide overall guidance to the project, (iv) support cross-agency policy dialogue, (v) review project progress, and (vi) provide strategic advice to support effective implementation.
6. **NNDRC** will exercise day-to-day oversight of the project and will be responsible for (i) approval of domestic feasibility study and submission of authorization requests for foreign capital utilization, (ii) approval of any major changes needed in the project scope, (iii) liaison with NDRC, (iv) facilitating interdepartmental and inter-sector cooperation needed for effective project implementation, (v) economic planning and managing the alignment of individual sector plans and reforms with the approved economic plans, and (vi) involvement in policy dialogue.

**Figure EMP.1: Institutional Arrangement for Environmental Management of Guangxi Nanning Vocational Education Development Project**



7. NNDR has established a project management office (PMO) to direct project preparation and implementation activities, coordinate implementation of environmental safeguards plans, monitor project progress and project impacts, and facilitate the communication and coordination with ADB. The PMO is staffed from NNDR. For environment safeguards, the PMO will have the overall responsibility delegated by NNDR for supervising the implementation of the EMP, coordinating the Project level Grievance Redress Mechanism (GRM) and reporting to ADB. The PMO will assign one safeguards officer (PMO-SO) in charge to supervise the effective implementation of the EMP.

8. To ensure that the contractors comply with the EMP provisions, the PMO-SO with the help and technical support of environment specialist of the loan implementation support (LIS-ES), will prepare and provide the following specification clauses for incorporation into the bidding procedures: (i) a list of environmental management requirements to be budgeted by the bidders in their proposals; (ii) environmental clauses for contractual terms and conditions; and (iii) major items in the IEE and EMP. In addition the PMO-SO will prepare annual environment monitoring and EMP progress reports in English, and submit them to ADB for appraisal and disclosure.

9. **Implementing agencies and implementing units.** The Project will include three implementing agencies. The project schools, i.e., NHS and NVT, as well as the XIDC will be the implementing agencies. NHS and NVT will each set up an implementing unit to coordinate the preparation and implementation of subproject

components. The implementing units will be fully staffed with technical experts and administrators in charge of school reform, procurement, financial management, disbursement, monitoring, evaluation and coordination.

**10. Xiangsihu investment and development company environment supervisor** (XIDC) will lead the preparation and implementation of component 3 (civil works) under the assistance of NHS and NVTs, XIDC will appoint one environment supervisor (XIDC-ES) to do the following: (i) review and approve contractors' site-EMP; (ii) conduct site inspections following the site inspection checklist (Appendix 2); (iii) organize periodic environmental monitoring in compliance with the approved monitoring plan; (iv) act as local entry point for the project GR); (v) assess the contractors' compliance with the site-EMP and the People's Republic of China's (PRC) environmental quality standards for ambient air, water, and noise quality; (vi) submit quarterly inspection and monitoring results to the contractors for information, and to the three implement agencies and the PMO for verification and confirmation.

**11. School environmental coordinators.** NHS and NVTs will appoint one environmental coordinator to: (i) liaise with the XIDC-ES and contractors and manage school activities potentially affected during construction; (ii) act as one team member of the environment management system (EMS) committee (the EMS committee is composed by one management representative and members from relevant departments of the school) to participate in environmental management in the daily school activities during operation; and (iii) act as local entry point for GRM.

**12. Construction contractors** will be responsible for implementing the mitigation measures during construction. In their bids, contractors will be required to respond to the environmental management requirements defined in the EMP. Each contractor will be required to develop site-EMPs and will assign a person responsible for environment, health and safety. After project completion, environmental management responsibilities will be handed over to the project schools.

**13. Environment specialist of the loan implementation support.** Under the loan implementation consultancy services, one international (1 person-month) and one national (3 person-months) EMS specialists will be recruited to assist the project schools establishing integrated EMS for the daily operation of campus, following the campus greening framework defined in Appendix 3 of the IEE. The EMS will aim at ensuring continual improvement by incorporating ongoing monitoring, reviews, and revisions of the environmental procedures. In addition, one national loan implementation support (LIS-ES) will support the project with (i) project preparation, including EMP update; (ii) EMP training, (iii) annual environment monitoring and EMP progress reporting; (iv) identifying environment-related implementation issues and necessary corrective actions; (v) undertaking site visits as required; and (vi) provide assistance to the EMS specialist to support implementing agencies in developing the EMS. The LIS-ES will be hired for 3 person-months during project implementation. The specialist will support the implementation of the EMP, including:

- (i) assess the project outputs' environmental readiness prior to implementation based on the readiness indicators defined in Table EMP-4;
- (ii) update the EMP including mitigation measures, monitoring plan, institutional arrangements, and training plan as necessary, to reflect the final project scope and detailed design, and submit to ADB for review and disclosure;
- (iii) if required, update the IEE report for changes in the project during detailed design (for example if there is a scope change) that would



result in adverse environmental impacts not within the scope of the approved IEE;

- (iv) support the executing agency, PMO, implement agencies, implementing units, and tendering companies in preparing tender documents, and ensure that the bidding documents and civil works contracts contain provisions requiring contractors to comply with the mitigation measures in the EMP and that relevant sections of the updated project EMP are incorporated in the bidding and contract documents;
- (v) support XDIC-ES and PMO-SO in reviewing and approving contractors' site-EMPs and organizing the conduct of periodic environmental impact monitoring;
- (vi) assist the executing agency and PMO to establish a GRM, and provide training for the PMO and GRM access points;
- (vii) conduct regular EMP compliance verification, undertake site visits as required, identify any environment-related implementation issues, and propose necessary corrective actions;
- (viii) prepare, on behalf of PMO, an annual EMP monitoring and progress reports to ADB;
- (ix) provide training to PMO, implementing agencies, implementing units, and contractors on environmental laws, regulations and policies, ADB Safeguard Policy Statement (2009), EMP implementation, and GRM in accordance with the training plan defined in the EMP; and
- (x) assist the PMO, implementing agencies, and implementing units in conducting consultation meetings with relevant stakeholders as required, informing them of imminent construction works, updating them on the latest project development activities, GRM.

14. Overall environmental responsibilities are outlined in **Table EMP-1**.

**Table EMP-1: Environmental Responsibilities by Project Phase**

Phase	Responsible Agencies	Environmental Responsibilities
Detailed Design	Design institutes	Incorporation of environmental mitigation measures in detailed designs
	PMO, LIS-ES	Update EMP based on detailed design, if necessary
	ADB	Approve updated EMP, if necessary
Tendering	PMO, XIDC, implementing units, tendering company	Ensure that mitigation measures and the EMP clauses are incorporated in tendering documents, civil works contracts and contractors' site-EMPs
	LIS-ES, ADB	Review tendering documents; confirm project's readiness
Construction	Contractors	Develop site-EMP; appoint one environmental specialist to coordinate site-EMP implementation; ensure health and safety.
	PMO	Coordinate GRM; supervise EMP implementation; prepare annual environmental progress report (with support of LIS-ES)
	XIDC, XIDC-ES	Assign one XIDC-ES to conduct environmental inspections and regular monitoring; prepare quarterly environmental inspection and monitoring reports; act as local GRM entry point.
	NHS, NVTS, S-EC	Assign one S-EC to liaise with the XIDC-ES and contractors; manage school activities potentially affected during construction; act as local entry point for GRM and member of the EMS committee.
	LIS-ES	Advise on the mitigation measures; provide comprehensive technical support to PMO, implementing agencies and implementing units for environmental management; conduct training; conduct annual EMP compliance review; support PMO in preparing annual environmental progress reports.
	ADB	Conduct review missions; review and approve annual environmental progress reports, including disclosure
	NEPB	Conduct periodic inspections of all construction projects relative to compliance with PRC regulations and standards.
Operation	PMO	Conduct EMP compliance review, instruct implementing agencies on environmental management requirements; prepare annual environmental progress report for first year of operation
	NHS, NVTS	Establish tailored EMS to manage the environmental, health and safety aspects in a systematic way and promote implementation of 3R and green campus measures.

3R = reduce, reuse, recycle, ADB = Asia Development Bank, GRM = LIS-ES = Loan Implementation Support Environment Specialist; PMO = Project Management Office; IU = Implementing Unit (under IA); EA = Executive Agency; XIDC = Xiangsihu Development and Investment Company; NHS = Nanning Health School; NVTS = Nanning No. 4 Vocational Training School; EMP = Environment Management Plan; NEPB = Nanning Environment Protection Bureau; XIDC-ES = XIDC Environmental Supervisor; S-EC = School Environment Coordinator; EMS = Environment Management System, S-EC = school environment coordinator



**Table EMP-2: Anticipated Impacts, Mitigation Measures**

Impact Factor/Project Stage	Potential Impacts and/or Issues	Location	Mitigation Measures	Implementation Agency	Supervision Agency	Monitoring Indicators
<b>A. Pre-construction Phase</b>						
1. Detailed Design Stage	(i) Institutional strengthening	<i>Not applicable</i>	a. Implementing agencies to establish implementing units; b. PMO to assign PMO-SO; c. PMO to engage LIS-ES; d. XIDC to engage XIDC-ES; and e. NVTs and NHS to appoint S-EC;	Implementing agencies, implementing units, PMO	Executing agency, ADB	Project readiness assessment by LIS-ES, first EMR.
	(ii) Design complying with relevant national health, safety and environmental codes and standards, including green and energy-efficient building codes and specifications	All new buildings	a. Design buildings in compliance with relevant design standards and codes for energy-efficient, safe and green public buildings, including but not limited to: GB 50099-2011 (Code for design of schools); GB 50011-2010 (Building Seismic Design Code); GB 50016-2006 (Code of Design on Building Fire Protection and Prevention); GB 50189-2005 (Energy Conservation Design for Public Buildings); GB/T 50378-2006 (Evaluation Standard for Green Buildings); and other applicable national design codes. b. Ensure use of no VOC-emitting materials (including paints, coatings, adhesives, carpet and furniture's) to ensure high indoor air quality;	Design institutes	Executing agency, LIS	Approved detailed designs, First EMR
	(iii) Updating EMP	<i>Not applicable</i>	Review mitigation measures defined in this EMP, update as required to reflect detailed design.	LIS-ES, PMO-SO	ADB	Updated EMP approved by ADB and disclosed.
2. Bidding and Contract Award Stage	(i) Bidding documents and contractors qualifications	<i>Not applicable</i>	a. Include updated EMP of the IEE as annex to the Requests for Proposals; b. Include an environmental section in the TOR for bidders; c. Ensure that construction and supply contracts are responsive to EMP provisions and mitigation and monitoring measures are adequately budgeted; d. Implement a Green Public Procurement policy, with references to Public Procurement List of Energy-Saving Products (NDRC & MOF, 2011, or as updated) and Public Procurement List of	Design institutes, XIDC-ES, NHS, NVTs, LIS-ES	Executing agency, PMO, ADB	Bidding documents, construction and supply contracts

Impact Factor/Project Stage	Potential Impacts and/or Issues	Location	Mitigation Measures	Implementation Agency	Supervision Agency	Monitoring Indicators
			Environmental Labeling Products (MEP & MOF, 2011, or as updated).			
	(ii) GRM	<i>Not applicable</i>	a. Establish a GRM, appoint a GRM coordinator; b. Brief and provide training to GRM access points (S-EC, XIDC-ES, contractors); c. Disclose GRM to affected people before construction begins.	PMO-SO, LIS-ES	Executing agency, ADB	Operational GRM, First EMR
	(iii) EMP Training	<i>Not applicable</i>	Provide training to implementing agencies, implementing units, and contractors on implementation and supervision of EMP, GRM, reporting, in compliance with training plan (Table EMP.5)	LIS-ES	PMO, ADB	Evidence of training provided, satisfaction survey of participants, First EMR
	(iv) Site-EMPs	<i>Not applicable</i>	Develop Site-EMPs, responding to all clauses and requirements of this EMP, and including sub-plans such as Spill Management Plan, Waste Management Plan, Temporary Traffic Management Plan, Occupational Health and Safety Plan, Soil Erosion Control Plan, and others.	Contractor	PMO-SO, XIDC-ES, LIS-ES	Approved Site-EMPs, First EMR.
<b>B. Construction Phase</b>						
1. Soil	(i) Soil erosion	All construction sites, spoil disposal sites (if any)	a. Prepare soil erosion control plan (showing how runoff will be controlled at site perimeter to control soil and water runoff, and how disturbed areas will be reclaimed); b. Minimize active open excavation areas; c. Construct intercepting ditches and drains to prevent runoff entering construction sites, and divert runoff from sites to existing drainage; d. Stabilize all earthwork disturbance areas within maximum 14 days after earthworks have ceased; e. Properly slope and re-vegetate disturbed surfaces	Contractor	XIDC-ES, S-EC, LIS-ES	Quarterly inspection reports of XIDC-ES, annual EMRs
	(ii) Soil contamination	All construction sites	a. Store chemicals/hazardous products and waste on impermeable surfaces in secure, covered areas; b. Remove all construction wastes from the site to approved waste disposal sites; c. Establish emergency preparedness and response plan (Spill Management Plan); d. Provide spill cleanup measures and equipment at	Contractor	XIDC-ES, S-EC, LIS-ES	Quarterly inspection reports of XIDC-ES, annual EMRs

Impact Factor/Project Stage	Potential Impacts and/or Issues	Location	Mitigation Measures	Implementation Agency	Supervision Agency	Monitoring Indicators
			each construction site; e. Conduct training in emergency spill response procedures.			
2. Surface and Groundwater	(i) Pollution of surface and groundwater resources	All construction sites	a. Install water collection basins and sediment traps in all areas where construction equipment is washed; b. Wastewater generated from the washing down of mixer trucks and drum mixers and similar equipment should wherever practicable be recycled. c. Surplus wastewater and wastewater generated from building construction activities, including concreting, plastering, cleaning of works and similar activities should be discharged in to sewer after removal of solids in a silt removal facility; d. Sewage from temporary toilets, kitchens and similar facilities should be stored in an on-site facility (such as septic tank), emptied regularly and transported to a designated wastewater treatment plant for further treatment; e. Develop and implement Spill Management Plan; f. Properly manage solid waste (see below).	Contractor	XIDC-ES, S-EC, LIS-ES	Quarterly inspection reports of XIDC-ES, annual EMRs
3. Solid waste	Construction and domestic wastes generated on construction sites	All construction sites	a. Maximize reuse/recycling of construction and deconstruction wastes (e.g. iron, bricks, windows, doors, steel bars etc.); b. Provide appropriate waste storage containers for worker's construction and hazardous wastes; c. Install confined storage points of solid wastes away from sensitive receptors, regularly haul to an approved disposal facility; d. Use licensed contractors to remove wastes from the construction sites; e. Prohibit burning of waste.	Contractor	XIDC-ES, S-EC, LIS-ES	Quarterly inspection reports of XIDC-ES, annual EMRs
4. Noise	Noise from construction activities	All construction sites	a. Maintain equipment and machinery in good working order; undertake regular equipment maintenance, ensure compliance with PRC standard of GB 12523-2011; b. Operate between 0800H-2000H only and reach an agreement with NHS and NVTs management and nearby residents regarding the timing of heavy machinery work, to avoid any unnecessary	Contractor	XIDC-ES, S-EC, LIS-ES	Quarterly inspection reports of XIDC-ES; annual EMRs;

Impact Factor/Project Stage	Potential Impacts and/or Issues	Location	Mitigation Measures	Implementation Agency	Supervision Agency	Monitoring Indicators
			<p>disturbances; Nighttime works should only be conducted in exceptional cases, and a permit should be obtained for that purpose; potentially affected people including students, staff and nearby residents should be informed in advance;</p> <p>c. Install temporary anti-noise barriers to shield school buildings where non-compliance with Category 1 in Environmental Quality Standards for Noise (GB3096-2008) is anticipated/monitored;</p> <p>d. Locate sites for concrete-mixing and similar activities at least 300 m from sensitive areas if without any mitigations;</p> <p>e. Monitor noise within NVTs campus and at nearby sensitive areas at regular intervals (as defined in the monitoring plan);</p> <p>f. Install temporary anti-noise barriers to shield school buildings where non-compliance with Category 1 in Environmental Quality Standards for Noise (GB3096-2008) is monitored; and</p> <p>g. Seek suggestions from two school management and potentially affected sensitive receptors to reduce noise annoyance. Disseminate information on procedure of handling complaints through the Grievance Redress Mechanism.</p>			
5. Ambient Air	(i) Dust generated during construction	All construction sites, including nearby residential areas	<p>a. Install perimeter fences at each site prior to construction. The fence shall be at least 2m high;</p> <p>b. Spray water at least twice a day where fugitive dust is generated during deconstruction of old buildings and civil works;</p> <p>c. Cover trucks carrying earth, sand or stone with tarps or other suitable cover to avoid spilling and dust generation;</p> <p>d. Undertake regular air quality monitoring in around the two campuses in accordance with the monitoring plan;</p> <p>e. Regularly consult students and staff as well as nearby residents to identify concerns, and implement additional dust control measures as necessary.</p>	Contractor	XIDC-ES, S-EC, LIS-ES	Quarterly inspection reports of XIDC-ES; annual EMRs;

Impact Factor/Project Stage	Potential Impacts and/or Issues	Location	Mitigation Measures	Implementation Agency	Supervision Agency	Monitoring Indicators
	(ii) Air emissions from construction vehicles and machinery	All construction sites	a. Store petroleum or other harmful materials in appropriate places and covering to minimize fugitive dust and emission; b. Maintain vehicles and construction machineries to a high standard to ensure efficient running and fuel-burning and compliance with the PRC emission standards (GB18352-2005, GB17691-2005, GB11340-2005, GB2847-2005 and GB18285-2005).	Contractor	XIDC-ES, S-EC, LIS-ES	Quarterly inspection reports of XIDC-ES; annual EMRs;
6. Physical cultural resources	Damage to known or unknown above- or below-ground cultural relics	All construction sites with excavation works	a. Establish chance-find procedures for physical cultural resources b. If a new site is unearthed, work must be stopped immediately and the IA and local cultural relic bureau promptly notified, and construction will resume only after a thorough investigation and with the permission of the appropriate authority.	Contractor	XIDC-ES, S-EC, LIS-ES; local cultural relics bureau	Quarterly inspection reports of XIDC-ES; annual EMRs
7. Flora and Fauna	Protection of vegetation, re-vegetation of disturbed areas; greening of sites	NHS and NVTS campuses	a. Preserve existing vegetation where no construction activity is planned; b. Remove trees or shrubs only as a last resort if they impinge directly on permanent structures; c. Properly re-vegetate disturbed areas after completion of civil works;	Contractor	XIDC-ES, S-EC, LIS-ES;	Annual EMRs
8. Health and Safety	Occupational Health and Safety	All construction sites, work camps	a. Appoint one staff to implement and supervise the implementation of the Site-EMP and the performance of subcontractors; b. Provide safe supply of clean water and an adequate number of latrines and other sanitary arrangements at the site and work areas, and ensure that they are cleaned and maintained in a hygienic state; c. Provide garbage receptacles at construction site; d. Provide personal protection equipment (PPE) for workers in accordance with relevant health and safety regulations; e. Develop an emergency response plan to take actions on accidents and emergencies; document and report occupational accidents, diseases, and incidents; organize fully equipped first-aid base at each construction site; f. Establish Records Management System that will	Contractor, (NVTS, NHS)	XIDC-ES, local center of disease control, LIS-ES	Inspection report of ES, report on number of incidents and complaints in annual EMRs

Impact Factor/Project Stage	Potential Impacts and/or Issues	Location	Mitigation Measures	Implementation Agency	Supervision Agency	Monitoring Indicators
			<p>store and maintain easily retrievable records on occupational accidents, diseases and incidents.</p> <p>g. Train all construction workers in basic sanitation and hygiene issues, general health and safety matters, and on the specific hazards of their work.</p> <p>h. To minimize the risk of conflicts between workers and staff/students of the schools, implement HIV/AIDS and sexually transmitted infections (STIs) awareness and prevention training for all employees, and together with the local centers of disease control and the school management, disseminate information on the risks, hazards, impacts and prevention know-how on HIV/AIDS and STIs among the staff/students, workers on the construction sites, students and staff of NVTS and NHS, and local community.</p> <p>i. Ensure that safety, rescue and industrial health matters are given a high degree of publicity to all persons regularly or occasionally on the site. Posters drawing attention to site safety, rescue and industrial health regulations will be made or obtained from the appropriate sources and will be displayed prominently in relevant areas of the site;</p>			
	(iii) Community Health and Safety	All construction sites, NVTS and NHS campuses, plus nearby residential areas	<p>a. Prepare traffic control plan within and around NVTS and NHS campuses during construction, to be approved by XIDC, NVTS and NHS management, and local traffic management administration. The plan shall include provisions for diverting or scheduling construction traffic to avoid peak traffic hours, main teaching activities such as exams, regulating traffic at road crossings with an emphasis on ensuring public safety through clear signage;</p> <p>b. Designate staff members to control traffic during on-school and off-school hours;</p> <p>c. Ensure that all sites are secure, discouraging access through appropriate fencing; place clear signs at construction sites in view of the people at risk (including students, staff and nearby communities), warning people of potential dangers such as moving vehicles, hazardous materials, excavations etc. and</p>	Contractor, (NVTS, NHS)	XIDC-ES, S-EC, LIS-ES; local traffic police	Inspection report of ES, report on number of incidents and complaints in annual EMRs

Impact Factor/Project Stage	Potential Impacts and/or Issues	Location	Mitigation Measures	Implementation Agency	Supervision Agency	Monitoring Indicators
			<p>raising awareness on safety issues;</p> <p>d. Return machinery to its overnight storage area/position.</p> <p>e. In collaboration with the school management, held a meeting prior to commencing construction to discuss issues associated with ensuring the safety of students and staff, as well as nearby communities in the vicinity of the construction site.</p>			
	(iv) Utilities provision interruption	All construction sites, NVTs and NHS campuses, plus nearby residential areas	<p>a. Assess potential disruption to services and identify risks before starting construction;</p> <p>b. If temporary disruption is unavoidable, develop a plan to minimize the disruption and communicate the dates and duration in advance to all affected people, in conjunction with the NHS and NVTs management.</p>	Contractor	XIDC-ES, S-EC, LIS-ES;	Annual EMRs
9. Labor standards and rights	Social protection of workers	<i>Not applicable</i>	<p>a. Contractors shall (i) provide equal pay for equal work, regardless of gender or ethnicity; (ii) provide the timely payment of wages; (iii) use local unskilled labor, as applicable, (iv) comply with core labor standards and the applicable labor laws and regulations, including stipulations related to employment, e.g. health, safety, welfare and the workers' rights, and anti-trafficking laws; and (v) not employ child labor;</p> <p>b. Contractors shall maintain records of labor employment, including the name, ethnicity, age, gender, domicile, working time, and the payment of wages.</p>	Contractor	XIDC, LIS, PMO	Project progress reports
10. EMS		NVTs, NHS	Development of a campus-wide environment management system (EMS), including development of simple tools and programs, based on the strategy outlined in Appendix 3, to improve the TVET institutions' environment, health and safety systems.	EMS specialist, NVTs, NHS	Executing agency, ADB	EMS established and operational.
<b>C. Operation Phase</b>						
1. EMS	Implementation of EMS	NVTs, NHS	Ensure implementation of the EMS to manage the activities in campus to achieve green, safe and sustainable campus.	EMS specialist, NVTs, NHS	Executing agency, ADB	EMS system to be reported on in first operation phase EMR

Impact Factor/Project Stage	Potential Impacts and/or Issues	Location	Mitigation Measures	Implementation Agency	Supervision Agency	Monitoring Indicators
2. Wastewater	Inadequate wastewater disposal	NVTS, NHS	Ensure connection of new buildings to on-site pretreatment facilities (septic tanks) and to municipal sewer system.	NVTS, NHS	Local EPB	First operation phase EMR
3. Solid waste	Inappropriate management of non-hazardous solid waste	NVTS, NHS	<ul style="list-style-type: none"> <li>a. Provide adequate solid waste collection facilities in all buildings and on the campus;</li> <li>b. Promote segregation of waste through (i) provision of separate collection bins for paper, biodegradable waste, metallic waste, and other wastes; and (ii) provision of training and awareness raising for TVET staff and students;</li> <li>c. Reach agreement with waste collection service provider(s) for different types of waste;</li> <li>d. Regularly clean and disinfect waste collection facilities.</li> </ul>	NVTS, NHS	Local EPB	First operation phase EMR
4. Health and safety	Campus health and safety	TVET classrooms, workshops, outdoor areas	<ul style="list-style-type: none"> <li>a. Ensure compliance with relevant health and safety regulations pertaining to ventilation, indoor air quality, lighting, noise, fire escape, etc.;</li> <li>b. Establish preparedness plan and operation plan under emergency conditions, such as fire, flood, earthquake, wind, storm, water contamination, epidemic, air contamination, infestation, explosion etc., as part of the campus-wide EMS to ensure safe environment for all student, faculty, staff and visitors.</li> <li>c. Prepare safety checklist and reporting forms as procedure control documents of EMS;</li> <li>d. Provide guidelines and reference materials to help campus reduce or eliminate potential hazards which may cause injury, illness or property loss.</li> </ul>	NVTS, NHS	Executing agency, occupational health authorities	First operation phase EMR

ADB = Asia Development Bank; DI = Design Institute(s); LIS-ES = Loan Implementation Environmental Consultants; LIC = Loan Implementation Consultant; PMO = Project Management Office; EA = Executive Agency; IA = Implementing Agency; IEE = Initial Environmental Examination; EMP = Environmental Management Plan; EHS = Environment, Health and Safety; EPB = Environment Protection Bureau; EMS = Environment Management System; TVET = Technical Vocational Education and Training; EMR = Annual Environment monitoring and EMP progress report.



## B. Summary of Potential Impacts and Mitigation Measures

15. Potential environmental issues and impacts during the pre-construction, construction and operation phases, as identified in the IEE, as well as corresponding mitigation measures designed to minimize the impacts are summarized in Table EMP-2. The contractors will reflect these mitigation measures in their site-EMPs, to be reviewed and approved by the XIDC-ES, the PMO-SO and the LIS-ES.

16. The effectiveness of these measures will be evaluated based on the results of the environmental inspections and monitoring conducted by the XIDC-ES, and through EMP verification conducted by the LIS-ES.

17. Many of the mitigation measures will be shouldered by construction contractors in the construction phase. Periodic monitoring and regular supervision costs will be shouldered by XIDC. The PMO will ensure that adequate funds for mitigation measures and monitoring activities have been allocated by the contractor and XIDC, respectively.

## C. Environmental Inspection and Monitoring Plan

18. The inspection and monitoring plan in the EMP will serve as the template for assessing the potential adverse impacts caused by the project components, and identifying adequacy of protection measures implemented.

19. The plan defines the items to be inspected and parameters to be monitored, the frequency of inspection and monitoring, and the location of sampling. The environment supervisor appointed by Xiangsihu Development and Investment Company (XIDC-ES) will be in charge of conducting regular inspections and organizing periodical environmental monitoring for noise and air quality. The Environment Coordinators of the two schools (S-EC) will support XIDC-ES during field inspections.

20. The XIDC-ES will compile inspection and monitoring reports on a quarterly basis during construction. These reports will be shared with the contractors, and submitted to the relevant IA (NVTs or NHS) and its IU for information, as well as to the PMO-SO for review and appraisal. The PMO-SO will summarize the quarterly environmental inspection and monitoring results of the XIDC-ES into the quarterly project progress report prepared for ADB. More details on environmental inspection and monitoring will be included in the annual environmental monitoring and EMP progress reports prepared for ADB by the PMO-SO (with support of the LIS-ES). These will be disclosed on the project website.

**Table EMP-3: Environmental Monitoring and Inspection Plan**

Environmental Media/Issue	Location, Parameters, Monitoring Technique	Responsibility & Frequency
<b>Pre-Construction Phase</b>		
Project readiness	<b>Method:</b> Review of PMO's, IAs, IUs and contractor's readiness to implement the project based on assessment of Project Readiness Indicators <b>Parameters:</b> Readiness indicators (Table EMP-4)	LIS-ES—once before construction

Environmental Media/Issue	Location, Parameters, Monitoring Technique	Responsibility & Frequency
<b>Construction Phase</b>		
Soil erosion and contamination	<b>Method, Location:</b> Visual inspection of the construction sites; <b>Parameters:</b> (i) adequacy of soil erosion prevention measures; (ii) adequacy of soil contamination prevention techniques; (iii) evidence of excessive soil erosion or soil contamination (based on Site inspection checklist, Appendix 2)	XIDC-ES – every ten days during peak construction period, monthly after; LIS-ES - yearly
Solid and liquid waste management	<b>Method, Location:</b> Visual inspection of construction sites <b>Parameters:</b> (i) adequacy of solid and liquid waste management, storage and containment system; (ii) presence of solid waste dumps, waste fires (based on Site inspection checklist, Appendix 2)	XIDC-ES - every ten days during peak construction period, monthly after; LIS-ES – yearly
Construction site health and safety	<b>Method, Location:</b> Visual inspection and interviews with construction workers and contractors at construction sites <b>Parameters:</b> Site inspection checklist (Appendix 2)	XIDC-ES – every ten days during peak construction period, monthly after; LIS-ES – yearly
Community health and safety	<b>Method, Location:</b> Visual inspection of the construction sites, informal interviews with TVET staff and students, and nearby residents. <b>Parameters:</b> (i) adequacy of construction site signage and fencing; (ii) adequacy of temporary noise mitigation measures; (iii) accidents involving public and workers; (iv) emergencies and responses; (v) public complaints about noise, air pollution, construction site safety, localized flooding, etc.	XIDC-ES – every ten days during peak construction period, monthly after; LIS-ES - yearly
Air quality	<b>Method, Location:</b> Air quality monitoring, at least 3 points per campus, around construction site, and at boundaries of sensitive receptors (dormitories, nearby residential areas) <b>Parameters:</b> PM10	Contractor- weekly during peak construction period; XIDC-ES – monthly during first two months of construction, quarterly thereafter, or in response to complaints
Noise	<b>Method, Location:</b> at 4 points at boundary of construction site, and at least 3 points around at boundaries of sensitive receptors (dormitories, nearby residential areas) <b>Parameters:</b> Leq dB(A)	Contractor- weekly during peak construction period; XIDC-ES – monthly during first two months of construction, quarterly thereafter, or in response to complaints

Environmental Media/Issue	Location, Parameters, Monitoring Technique	Responsibility & Frequency
<b>Construction Completion and Operation Phase</b>		
Construction Completion Approval	<b>Method, Location:</b> NVTs/NHS formal application to local EPB; the approval / inspection procedure to be arranged by local EPB. <b>Parameters:</b> As required by local EPB requirement	NVTs/NHS – application before operation; Local EPB – environmental completion acceptance approval

21. **Assessment of project readiness.** Before construction, the LIS-ES will assess the project's readiness in terms of environmental management based on a set of indicators (Table EMP-4) and report it to ADB, PMO, XIDC and the two schools. This assessment will demonstrate that environmental commitments are being carried out and environmental management systems are in place before construction starts, or suggest corrective actions to ensure that all requirements are met.

**Table EMP-4: Project Readiness Assessment Indicators**

Indicator	Criteria	Assessment	
EMP update	The EMP was updated after detailed design, and approved by ADB	Yes	No
Compliance with loan covenants	The borrower complies with loan covenants related to project design and environmental management planning	Yes	No
Public involvement effectiveness	Meaningful consultation completed; GRM established with entry points	Yes	No
Environmental Supervision in place	LIS-ES is in place XIDC-ES appointed PMO-SO appointed S-EC assigned	Yes	No
		Yes	No
		Yes	No
		Yes	No
Bidding documents and contracts with environmental safeguards	Bidding documents and contracts incorporating the environmental activities and safeguards listed as loan assurances;	Yes	No
Contractor readiness	Site-EMPs prepared by contractors, reviewed and approved by XIDC-ES, PMO-SO	Yes	No
EMP financial support	The required funds have been set aside to support the EMP implementation according to the financial plan.	Yes	No

22. **Environmental monitoring and inspection cost estimates.** Costs for environmental monitoring and inspection include salaries and consultancy fees for the PMO-SO, the LIS-ES, LIS-EMS specialists and the XIDC-ES, as well as costs for the environmental monitoring performed by the XIDC-ES. The salary costs of the

PMO-SO and LIS-ES will be covered by the EA; the salaries of the XIDC-ES will be covered by the XIDC. Air and noise monitoring costs will amount to approximately \$3,000 per school over 2 years. These expenses will be covered by XIDC.

## **D. Institutional strengthening and training**

23. The capacity of the implementing agencies, implementing units and the PMO staff responsible for EMP implementation and supervision will be strengthened. All parties involved in implementing and supervising the EMP must have an understanding of the goals, methods and practices of project environmental management. The project will address the lack of capacities and expertise in environmental management through (i) institutional strengthening, and (ii) training.

24. **Institutional strengthening.** The capacities of the PMO, implementing agencies and implementing units to coordinate environmental management will be strengthened through a set of measures:

- (i) The appointment of a staff member within the PMO (PMO-SO) in charge of EMP coordination, including GRM;
- (ii) The appointment of one national environmental consultant under the loan implementation consultancy to guide PMO and implementing agencies in implementing the EMP and ensure compliance with ADB Safeguard Policy Statement (2009);
- (iii) The appointment of an environment specialist by the XIDC (XIDC-ES) to conduct regular site inspections and coordinate periodic air and noise monitoring; and
- (iv) The assignment of one member of NVTs and NHS to act as school environment coordinator (S-EC) during construction and operation.

25. **Training.** The executing agency, PMO, implementing agencies (NVTs, NHS and XIDC) and IUs will receive training in EMP implementation, supervision and reporting, and on the Grievance Redress Mechanism (Table EMP-5). Training will be facilitated by the LIS-ES with support of other experts under the loan implementation support (LIS).

**Table EMP-5: Training Program**

<b>Training Topic</b>	<b>Targeted Agencies</b>	<b>Timing</b>	<b>Duration Costs</b>
<b>EMP Implementation:</b> Roles and Responsibilities, Monitoring, Supervision and Reporting Procedures, Review of Experience (after 12 months)	PMO, NVTs, NHS, XIDC, IUs, Contractors	Once prior to, and once after one year of project implementation	2 x 0.5 day, \$1,000
<b>Grievance Redress Mechanism:</b> Roles and Responsibilities, Procedures, Review of Experience (after 12 months)	PMO, NVTs, NHS, XIDC, IUs, Contractors community representatives, Contractors	Once prior to, and once after one year of project implementation	2x 0.5 day, \$1,000

## **E. Environmental Reporting**

26. **Project progress reports.** The executing agency will provide ADB with (i) Project quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress

achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, and (d) updated implementation plan for next 12 months; and (iii) a project completion report within 6 months of physical completion of the project.

27. The quarterly progress reports will also include a summary of EMP implementation status, results of inspections conducted by the XIDC-ES, problems encountered during construction and operation, if any, and the relevant corrective actions undertaken.

28. **Yearly environmental progress reports.** To ensure proper and timely implementation of the EMP and adherence to the agreed environmental covenants, the PMO shall submit to ADB yearly environmental progress reports, based on the quarterly inspection and monitoring reports of the XIDC-ES. The LIS-ES will support the PMO in developing the annual reports. The report should confirm the project's compliance with the EMP, and identify any environment related implementation issues and necessary corrective actions. The performance of the contractors will also be reported on with respect to environmental protection and impact mitigation. The operation and performance of the project GRM, environmental institutional strengthening and training will also be included in the report. Table EMP-6 summarizes the reporting requirements.

**Table EMP-6: Reporting Requirements**

Report	Frequency	Purpose	From	To
Inspection and monitoring reports	Quarterly	Confirmation of contractors compliance with EMP, presentation of monitoring results	XIDC-ES	Contractors, implementing agencies, PMO, LIS-ES
Project Progress Reports	Quarterly	General project progress, including summary of EMP implementation	PMO	ADB
Annual Environmental Progress Report	Annually	Adherence to Environmental Covenants and EMP, presentation of monitoring results	PMO, LIS-ES	ADB

## **F. Mechanisms for Feedback and Adjustment**

29. Based on environmental monitoring and reporting systems in place, the PMO shall assess whether further mitigation measures are required as corrective action, or improvement in environmental management practices are required. The effectiveness of mitigation measures and monitoring and inspection plans will be evaluated by a feedback reporting system. If the PMO identifies a substantial deviation from the EMP, or if any changes are made to the project scope that may cause significant adverse environmental impacts or increase the number of affected people, then the PMO shall immediately consult ADB to identify EMP adjustment requirements.

## **G. Cost Estimates for Environmental Management**

30. The total project cost for the Guangxi Nanning Vocational Education Development Project is approximately \$ 103.260 million. The environmental

protection related cost is \$ 227,000 of the total project budget. The major environmental protection costs include protection and mitigation measures during construction, institutional strengthening (salary costs for counterpart environment experts), environmental management training and establishment of environmental management systems (EMS) for the NVTs and NHS campuses. Excluded from the costs estimates are infrastructure costs which are included in the project direct costs. Cost estimates for mitigation measures, environmental monitoring, public consultation and capacity building are summarized in Table EMP-7.

**Table EMP-7: Cost Estimates for EMP Implementation and EMS Capacity Building**

Item	Costs per contract or school (USD)	Total (USD)	Costs covered by
<b>Environmental mitigation during construction</b> - Erosion control - Dust control - Noise control - Solid waste control - Site safety and hygiene - Traffic management  - Site re-vegetation  - Contractor environment coordinator (salary)	13,000 (per civil works contract)       12,000 (per civil works contract)	52,000       48,000	Contractors (contracts CT01, CT02, CH01, CH02)       
<b>Environment impact monitoring</b> - Periodic air and noise quality monitoring during construction - Completion environmental and safety audit	3,000 (per school)  1,000 (per school)	6,000  2,000	XIDC operational budget
<b>Counterpart environmental staff</b> XIDC-ES (salary, site inspections)		40,000	XIDC operational budget
PMO-SO (salary, GRM coordination, reporting)		10,000	NNDRC operational budget
<b>Project implementation consultants:</b> - LIS-ES (national, 3 person-months, including consultant fees, travel costs, per diem) - EMS specialist (international, 1 person-month, including consultant fees, travel costs, per diem) - EMS specialist (national, 3 person-months, including consultant fees, travel costs, per diem)		18,000 20,000 18,000	Project implementation support (Loan package SO2)
<b>Training and capacity building:</b> - EMP implementation & GRM		2,000	Project capacity

Item	Costs per contract or school (USD)	Total (USD)	Costs covered by
-EMS: on-the-job training on approaches and steps to develop campus-wide EMS - EMS: auditor training - Exchange and study tour to one of the members of the China Green University Network		2,000 1,000 8,000	building (Loan package SO2)
<b>Total (USD)</b>		<b>227,000</b>	

*Source: Local EIA report (TEIAR) + PPTA consultant*

31. During project implementation, the budget will be adjusted based on actual requirements. Contractors will bear the costs of all mitigation measures during construction, which will be included in the tender and contract documents. NVTs and NHS will bear the costs related to mitigation measures during operation. Costs related to environmental inspection during construction will be borne by the XIDC. Training costs will be borne by the project as a whole.

## Attachment to EMP – ENVIRONMENTAL SITE INSPECTION CHECKLIST

### ADB-financed Guangxi Vocational Education Development Project

Note: This form is designed for use by the XIDC-ES during site inspections and may not be exhaustive. The Environmental Coordinator of each project school (S-EC) will assist the XIDC-ES during inspections. Modifications and additions may be necessary to suit individual projects and to address specific environmental issues and mitigation measures.

Sub - Project Name: \_\_\_\_\_

Site Location: \_\_\_\_\_

Construction stage: \_\_\_\_\_

Inspection Date: \_\_\_\_\_

Inspection Time: \_\_\_\_\_

Weather: \_\_\_\_\_

Inspected by: \_\_\_\_\_

Inspection Item	Yes	No	N.A.	Remarks (i.e. problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
Site-EMP, GRM, information disclosure				
1. Has contractor appointed an environment supervisor and is the supervisor on-site?				
2. Is Site-EMP established?				
3. Is information pertaining to construction disclosed at construction site (including construction period, contractor information, etc.)?				
4. Is Grievance Redress Mechanism (GRM) disclosed at construction site?				
Soil erosion and contamination				
5. Are intercepting ditches and drains constructed to prevent runoff entering construction sites, and divert runoff from sites to existing drainage?				
6. Are disturbed areas stabilized after earthworks have ceased,				



Inspection Item	Yes	No	N.A.	Remarks (i.e. problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
and re-vegetated?				
7. Are chemicals/hazardous products and waste stored on impermeable surfaces in secure, covered areas?				
8. Is there evidence of oil spillage?				
9. Are spill kits / sand / saw dust used for absorbing chemical spillage readily accessible?				
10. Are chemicals stored and labeled properly?				
Air quality control				
11. Are construction sites regularly watered?				
12. Are stockpiles of dusty materials covered or watered and cement debagging process undertaken in sheltered areas?				
13. Are trucks carrying earth, sand or stone covered with tarps or other suitable cover to avoid spilling and dust?				
14. Is equipment well maintained? (any black smoke observed, please indicate the plant/equipment and location)				
15. Are there enclosures around the main dust-generating activities?				
16. Does contractor regularly consult with PIU, NVTs/NHS, students as well as nearby residents to identify concerns?				
17. Was air quality monitoring conducted since the last inspection? If yes, present results. If no, indicate date of next monitoring campaign.				
18. Noise				
19. Is there evidence of excessive noise? If yes, describe location and equipment.				
20. Does the contractor undertake regular equipment maintenance; ensure compliance with relevant PRC standard?				
21. Are sites for concrete-mixing and similar activities located				

Inspection Item	Yes	No	N.A.	Remarks (i.e. problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
at least 300 m from sensitive areas?				
22. Is the CNP (Construction Noise Permit) valid for work during restricted hours?				
23. Do air compressors and generators operate with doors closed?				
24. Is idle plant/equipment turned off or throttled down?				
25. Any noise mitigation measures adopted (e.g. use noise barrier / enclosure)?				
26. Was noise monitoring conducted since the last inspection? If yes, present results. If no, indicate date of next monitoring campaign.				
27. Does contractor regularly consult with PIU, NVTs/NHS, students as well as nearby residents to identify concerns related to noise?				
Surface water pollution				
28. Did the contractor develop Spill Management Plan?				
29. Are wastewater treatment systems being used and properly maintained on site? (e.g. desilting tank)				
30. Is construction wastewater and domestic wastewater discharged to sewer systems (if possible), or are on-site treatment facilities provided to ensure compliance with effluent discharge standard?				
31. Are there any wastewater discharged to the storm drains?				
Solid waste management				
32. Is the site kept clean and tidy? (e.g. litter free, good housekeeping)				
33. Are separate chutes used for inert and non- inert wastes?				
34. Are separated labeled containers/ areas provided for facilitating recycling and waste segregation?				
35. Are construction wastes / recyclable wastes and				

Inspection Item	Yes	No	N.A.	Remarks (i.e. problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
general refuse removed off site regularly?				
36. Are chemical wastes, if any, collected and disposed of properly by licensed collectors?				
<b>Health and safety</b>				
37. Is safe supply of clean water and an adequate number of latrines provided for workers?				
38. Are garbage receptacles provided at construction site?				
39. Is personal protection equipment (PPE) provided for workers in accordance with relevant health and safety regulations?				
40. Does the contractor have emergency response plan to take actions on accidents and emergencies?				
41. Are clear signs placed at construction sites in view of the TVET students and staff as well as the public, warning people of potential dangers such as moving vehicles, hazardous materials, excavations etc., and raising awareness on safety issues?				
42. Are all construction sites made secure, discouraging access through appropriate fencing?				
43. Are traffic control measures (speed control, access control) applied?				
44. Are fire extinguishers / fighting facilities properly maintained and not expired? Escape not blocked / obstructed?				
<b>Vegetation</b>				
45. Is there any evidence of excessive destruction of existing vegetation where no construction activity is occurring?				
46. Are disturbed areas properly re-vegetate after completion of civil works?				
<b>Physical cultural resources</b>				

Inspection Item	Yes	No	N.A.	Remarks (i.e. problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
47. Are there any chance found relics? If yes, ensure appropriate measures taken to preserve them.				
Others				
48. Any other problems identified or observations made?				

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Date, Name and Signature of Site Inspector

## Attachment 3- GREEN CAMPUS POLICY FRAMEWORK (DRAFT)

### I. Preamble

1. **National policy for sustainable campuses.** The promotion of environmental sustainability and safety on school campuses (Green Campus) is an important objective of key authorities in the People's Republic of China (PRC), as the following demonstrates:
  - (i) The Ministry of Housing and Urban-Rural Development (MOHURD) and the Ministry of Education (MoE) jointly issued a guideline on the development of resources-saving college campuses in May, 2008. Other guidelines, design codes and opinions have been issued, all aiming at promoting pollution prevention and abatement, resource-conservation, and safety in governmental building, university and college campuses, and other public facilities (Table 1).
  - (ii) In 2011, the China Green University Network (CGUN) was established. The CGUN, sponsored by Tongji University and established with support from the Ministry of Housing and Urban-Rural Development and American Energy Foundation, aims at facilitating the formation and development of green campus at national level. The CGUN includes 11 professional committees, covering building intelligence, energy saving, green campus policy research, water utilization, etc.

### II. Background

2. **Nanning Health School** was founded in 1972 which is a state-level key secondary vocational school and a state-level demonstration school for the reform and development of secondary vocational education. It now has two campuses, namely Nanning campus (including five teaching schools) and Litang campus. Currently, the school has over 8,000 students (excluding the interns), including 4,868 students in Nanning campus (excluding the interns) and 3,840 students in Litang campus. The limited land space and facilities have significantly affected the development of the school so that the whole school will move to a new campus located in Xiangsihu New District in Nanning in the future.
3. **Nanning No. 4 Vocational School** founded in 1965, is a public comprehensive secondary vocational school. The school now has three campuses: Zhuxi campus, Tanluo campus, and Yongning campus. The Yongning campus is oriented to train high quality preschool education teachers and professional personnel to inherit traditional ethnic arts by focusing on preschool education while considering the development of other related specialties such as culture, arts and sports. The Yongning campus will be built to provide education for about 4,500 full-time students by the year 2013 and to satisfy the short-term training of 2,000 teachers per year. Due to historical reasons, the existing teaching buildings and students' dormitories of Yongning campus were built in the 1980s, and there are hardly any experimental and training bases in the campus. The infrastructure, such as power supply, water supply and drainage, fire control, and roads, is rather backward.
4. The proposed project will construct phase II of the new campus at Xiangsihu for Nanning Health School, and upgrade the school infrastructure for Nanning No. 4 Vocational School. The new and updated vocational school facilities in each campus will effectively alleviate the pressures on current school facilities to ensure the safety of its teaching activities and realize its sustainable

development.

5. **Current practices at project schools.** Although many environmental protection measures can be seen at the two schools, there is still challenge for the school management facing increasing student population and new campus. Meanwhile, the school management has recognized a more systematic and sustainable approach to reducing the negative impacts of operation activities and enhancing the campuses environmental sustainability is generally lacking. With the support of the PPTA environmental consultant, the existing environment management systems of NVTs and NHS was assessed and the following observations were made:
  - (i) NVTs and NHS have procedures in place and responsibilities assigned to manage environmental services (such as water supply, wastewater and solid waste management, emergency response mechanism, health and safety). NHS has established an integrated management system and update every few years. This integrated system covered many aspects of daily management. However, there is no institutionalized mechanism to coordinate these services, and there is no vision or strategy related to campus greening, campus sustainability, or campus health and safety;
  - (ii) NVTs and NHS have little understanding of what a campus-wide environmental management system (EMS) is, and what environmental, social and monetary benefits it could bring; and
  - (iii) NVTs and NHS expressed interest in exploring options to strengthen and formalize their existing environmental management systems.
6. Clearly, there is a need and a demand for a comprehensive, campus-wide environmental management, but a lack of expertise to establish such an EMS. During PPTA, NVTs and NHS agreed to promote environmental sustainability of their campuses, through the definition of a Green Campus Policy Framework.
7. This Green Campus Policy Framework has been defined in consultation with the management of both schools, under the lead of the PPTA environment consultant. The Framework includes the following key components: (i) a declaration and policy statement by both schools to promote environmental sustainability, (ii) the definition of key objectives and proposed actions to reach these objectives, (iii) institutional setup and responsibilities for implementation of the Green Campus Policy, and (iv) next steps.

### III. Declaration and Policy Statement

#### IV. **DECLARATION: “NVTs/NHS agrees to set an example of environmental responsibility by establishing institutional environmental policies and practices of resource conservation,**

Nanning No. 4 Vocational School

Environmental Policy Statement

The Nanning NO.4 Vocational School recognizes that environmental issues are fundamental to the future health and well-being. Thus, we are seeking to minimize these impacts and to find sustainable solutions to environmental concerns. We will actively pursue a policy of environmental best practice aimed at achieving sustainable development and will continually strive for improvement. We accept the responsibility of demonstrating leadership in environmental protection and enhancement through our actions as an institution.

In support of these principles, we are committed to:

- Promoting the protection of the natural and cultural environment on campus and at other sites used by the school;
- Continually improving the school's environmental performance through the introduction of an Environmental Management System(EMS);
- Complying with all the relevant environmental legislation related to the school's activities;
- Reducing and where possible preventing pollution through the development of effective resource and waste management strategies;
- Increasing awareness of environmental responsibilities among staff and students;
- Monitoring and auditing the school's environmental performance and practice at regular intervals.

President

**recycling, waste reduction, and environmentally sound operations**

## Nanning Health School

### Environmental Policy Statement

The Nanning Health School (NHS) recognizes that environmental issues are fundamental to the future health and well-being. Thus, we are seeking to minimize these impacts and to find sustainable solutions to environmental concerns. We will actively pursue a policy of environmental best practice aimed at achieving sustainable development and will continually strive for improvement. We accept the responsibility of demonstrating leadership in environmental protection and enhancement through our actions as an institution.

In support of these principles, we are committed to:

- Promoting the protection of the natural and cultural environment on campus and at other sites used by the school;
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- Complying with all the relevant environmental legislation related to the school's activities;
- Reducing and where possible preventing pollution through the development of effective resource and waste management strategies;
- Increasing awareness of environmental responsibilities among staff and students;
- Monitoring and auditing the school's environmental performance and practice at regular intervals.

President



## V. Objectives and Actions

8. NVTs/NHS will take all reasonable steps to meet the environmental policy statement. The following areas have been prioritized for action:
  - (i) Education, Awareness, Communication- With regards to education and communication, NVTs/NHS will:
    - a. Increase awareness of environmental issues amongst students, irrespective of their field of study, through the incorporation into courses of material on the environment and sustainable development;
    - b. Encourage and provide education on environmental issues to NVTs/NHS employees, so that they can pursue their work in an environmentally responsible way.
    - c. Keep all staff and students informed of the school's environmental and sustainable development initiatives.
  - (ii) Operations With regards to achieving improvements in environmental performance related to institutional practice, NVTs/NHS will take actions on:
    - a. Protect and enhance the biological and environmental quality of campuses.
    - b. Develop and operate responsible energy management practices through reducing consumption of fossil fuels whilst investigating and utilizing new renewable technologies.
    - c. Adopt ways to minimize energy use and reduce water consumption in all the school's facilities, thus using these resources more effectively and efficiently.
    - d. Develop an effective waste management policy, which will manage waste in the following order of priority: reduce, reuse, recycle, safe disposal; ensure there are sufficient facilities to allow students, staff and visitors to reduce, reuse and recycle waste with the aim of minimizing the amount of waste ultimately sent to landfill.
    - e. Control emissions and discharges to prevent pollution; manage and minimize polluting effluents and emissions into air, land and water; avoid the unnecessary use of hazardous materials.
    - f. Define an environmentally sustainable equipment procurement policy that adheres to PRC green public procurement policies (such as *Public Procurement List of Environmental Labeling Products* issued and regularly updated by NDRC and MOF, and *Public Procurement List of Energy Saving Products* issued and regularly updated by MEP and MOF).
    - g. Adhere to national best practice for design of new buildings and refurbishment of old building, promoting water and energy efficiency, reduce any adverse environmental impacts the building may cause, whilst creating a productive and healthy environment for work, studies, and leisure

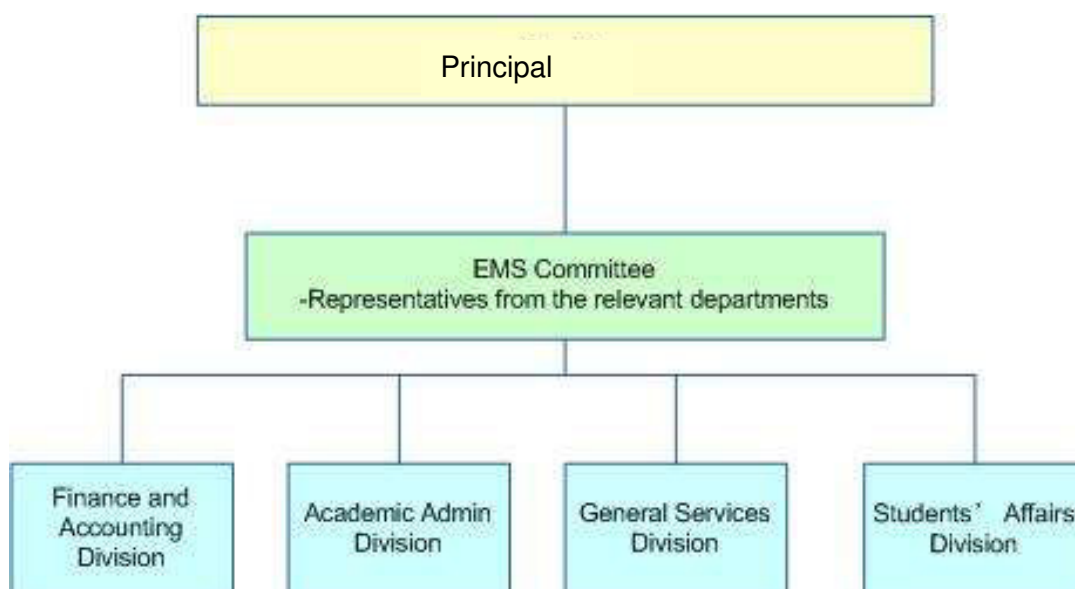
## VI. Implementation Organization and Responsibilities

9. **EMS committee.** In order to further develop the Green Campus Policy and implement its objectives and actions, NVTs/NHS will establish an EMS committee, tentatively consisting of the following (see institutional setup in

Figure 1):

- (i) **President.** The President is responsible for the following: (a) approval of the Green Campus Policy, (b) appointment of EMS Committee Director, (c) approval and issuance of sectoral policies and plans, (d) periodic evaluation, adjustment and approval of Green Campus Policy, institutional setup, targets, etc.
  - (ii) **EMS committee director:** The EMS committee will be directed by a senior administrative staff of the school (a Vice-President), appointed by the President. The EMS Committee Director will be primarily responsible for (a) setting setup the EMS Committee and defining the roles of its members; (b) developing and implementing programs and plans in accordance with the Green Campus Policy; and (c) monitoring implementation of the Policy, including reporting to President.
  - (iii) **EMS committee members.** The implementation of the Green Campus Policy, including the development and implementation and operation of the EMS, will comprise activities within the school's daily education and administrative operations, maintenance of buildings and the procurement of goods and services. Therefore, the EMS committee will include representatives from the following divisions and services:
    - a. **Finance and Accounting Division** (to establish and manage system for tracking costs of operations, screening suppliers and purchasing environmental friendly products).
    - b. **Academic Administration Division** (to integrate environment education into normal courses).
    - c. **General Services Division** (overall responsibility for identifying environmental aspects and preparing environmental target and management program; organizing environmental performance inspection; preparing emergency preparedness plan, etc.). Will include members from the school clinic, sanitation and cleaning unit, admin office, maintenance unit, logistic warehouse.
- Students' Affair Division** (to organize student society, conduct awareness raising programs on green campus, resource conservation, pollution prevention abatement, etc.).

Figure 1: Tentative institutional setup of EMS



## VII. Next steps

10. Under the loan implementation consultancy services of the ADB financed project, one international (one man-month) and one national EMS specialist (3 man-months) will support NVTs/NHS with refining the Green Campus Policy and elements of the EMS), identifying a suitable methodology for its implementation, and initiating its implementation. The EMS specialists will support NVTs and NHS with: (i) conducting gap analysis and needs assessment, including training and capacity building needs assessment; (ii) refining the Green Campus Policy (as drafted in above), including definition of a vision, environmental objectives and targets; (iii) defining setup and TOR of the EMS committee and its members; (iv) defining specific environmental management programs (including, but not limited to, energy conservation program; solid waste management program, water saving program); (v) preparing EMS documentation (manuals); (vi) plan and conduct specific training and workshops on EMS for faculty and students of NVTs/NHS, including exposure to the "China Green University Network" (Table 1); (vii) organize and facilitate review workshop with TVET institutions to evaluate the EMS establishment process and define follow-up actions; and (viii) write best practice note on EMS establishment for TVET institutions for dissemination to other schools and colleges in Guangxi.

Table 1: Tentative Training Plan on EMS for EMS Committee Members

Subject	Participants	Timing	Budget
EMS awareness and establishment of EMS: approaches and steps to develop campus-wide EMS	EMS committee members (all)	Once at the start of project implementation and once during project implementation	\$ 2,000
Study Tour to member universities of China Green University Network	Key members of the EMS committee (6-8)	Once when the committee is established	\$ 8,000

EMS implementation, monitoring, auditing	Key member of the EMS committee; student representatives	Once when the EMS is established.	\$ 1,000
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## Appendix 12: RISK ASSESSMENT AND RISK MANAGEMENT PLAN

The risk assessment for the proposed Guangxi Nanning Vocational Education Development Project has been conducted in accordance with Asian Development Bank's governance and anticorruption policy to identify main risks associated with implementation of the proposed project. The assessment identifies related mitigation measures built into the project design and assesses the residual risk with the mitigation measures included in the project design in place.

Risks	Risk Assessment	Mitigation Measures or Risk Management Plan
<b>1. Public Financial Management</b>		
<b>A. Inherent Risks</b>		
1.1 Country-specific risks Inadequate financial management, management and skills capacity.	Low	<p>(i) There are sufficient resident skills, expertise and experience in most areas for timely and successful implementation. In addition, there is a high level coordinating body in the government to systematically and critically assess directions and outcomes of the project.</p> <p>(ii) Training will be given to the PMO and local financial staff to familiarize them with ADB requirements.</p>
1.2 Entity-specific risks Inadequate understanding of roles of executing agency, implementing agency, and other agencies.	Low	<p>(i) A clear organizational structure of the executing agency /implementing agencies is already established in relation to the project, and separation of roles and responsibilities between parties are clear.</p> <p>(ii) Work plans of core activities for the executing agency/implementing agency personnel are well-developed.</p>
1.3 Project-specific risks (i) Implementing agencies lack experience with ADB projects. (ii) Some capacity building components will be partly managed by individual project TVET schools.	Medium Medium	<p>(i) Consulting support and training to be provided, including in the following areas:</p> <p>a. ADB disbursement procedures, and</p> <p>b. project accounting requirements.</p> <p>(ii) Detailed procedural guidance to be put in place in advance of loan effectiveness.</p> <p>(iii) NPMO will oversee local project activities by requiring implementing agency plans and cost estimates to be approved by them.</p>
Overall Inherent Risk	Low to Medium	
<b>B. Control Risks</b>		
1.4 Implementing entity's financial management policies and procedures for the project	Medium	Written financial procedures will be developed for the project and reviewed by suitably experienced GZAR officials.

<b>Risks</b>	<b>Risk Assessment</b>	<b>Mitigation Measures or Risk Management Plan</b>
are inadequate.		
1.5 Funds flow Weak adherence to ADB guidelines as concerns to disbursement and withdrawal of project funds by the executing agency and implementing agencies.	Low	(i) Executing agency to liaise regularly with ADB to ensure that ADB guidelines are followed. (ii) Inter-agency coordination at all levels to discuss the loan disbursement performance. (iii) Separate accounts to be maintained for all project components financed by ADB and the government.
1.6 Staffing (i) High staff turnover and inadequate financial management skills. (ii) Implementing agency accounting staff lacks adequate understanding of ADB requirements.	Low	(i) Provide thorough training on ADB's disbursement procedures and project accounting requirements. (ii) Oversight of disbursement by experienced financial staff at executing agency and GZAR level. (iii) Guidance and support from the management support consultant.
1.7 Accounting Policies and Procedures Account and bank reconciliations are not performed in a timely manner.	Low	Qualified and trained staff will undertake account and bank reconciliations on a periodic basis. Minor weaknesses identified in the FMA will be addressed prior to the project commencing.
1.8 Internal audit Inadequate capacity in the Internal Audit department.	Medium	All implementing agencies' financial activities are routinely subject to internal audit coverage but there is scope to enhance capacity by modernizing auditing methods.
1.9 External audit External auditors do not perform their functions adequately.	Low	Independent external auditors acceptable to ADB will be appointed by the executing agency to audit project accounts and compliance with financial covenants on an annual basis.
1.10 Reporting and monitoring Regular financial reports suitable for user needs are not prepared.	Low	(i) The executing agency will make comprehensive progress reports (including financial) to ADB semiannually. (ii) Consultancy support to advise improvements needed to financial management reporting.
Overall Control Risk assessment      Low to Medium		
<b>2. Procurement</b>		
2.1 Procurement capacity is low, leading to irregularities.	Medium	(i) Use of a specialist tendering company and a start-up consultant will enhance capacity. (ii) Training in ADB procurement procedures during project preparations and via the project management component.
2.2 Lack of monitoring mechanisms to oversee the procurement process.	Low	Effective supervisory and monitoring arrangements are already in place through the involvement of specialist procurement supervision offices of the executing agency.

Risks	Risk Assessment	Mitigation Measures or Risk Management Plan
2.3 Delays in the procurement process.	Medium	<ul style="list-style-type: none"> <li>(i) Training in project management and planning.</li> <li>(ii) Use of standard bidding documents and ADB advance contracting facility.</li> <li>(iii) Advice and support of tendering company and consultants.</li> </ul>
2.4 Non-performance by contractors or suppliers.	Low	<ul style="list-style-type: none"> <li>(i) Use of performance guarantees.</li> <li>(ii) Investigation and/or monitoring of past performance.</li> </ul>
Overall procurement risk assessment: Low to Medium		
<b>3. Other Project Implementation Risks</b>		
3.1 Poor social perception of TVET limits interest of potential trainees.	Medium	Central government is strongly supportive of TVET development, the need to improve TVET quality and enhance the value and social status of TVET education as a facilitator of economic growth and successful urbanization.
3.2 The commitment of TVET institutions to implementing change in teaching and learning methods is not sustained.	Medium	TVET improvement strategies have been developed through a consultative process that indicated a strong recognition of the need to improve, and with the strategies individually reviewed and finalized with the participation of the schools themselves.
3.3 Insufficient interest by NMG & GZAG in integrating the pilot innovations.	Medium	NMG is willing to give a loan assurance they will actively disseminate the pilot results and seek to make them models of best practice. There will also be ongoing policy dialogue on the pilot activities with relevant departments of NMG and GZAG.
3.4 Delays in counterpart funding.	Low	<ul style="list-style-type: none"> <li>(i) Covenanted assurances from NMG for timely provision of counterpart funding, together with NMG's strong and improving fiscal capacity.</li> <li>(ii) Direct coordination of PMO with NFB.</li> </ul>
Overall Other implementation risks Low to Medium assessment		
<b>4. Governance and Corruption Risks</b>		
4.1 Corruption in the procurement process.	Low	<ul style="list-style-type: none"> <li>(i) As identified under procurement risks (see above).</li> <li>(ii) Involvement and inspections of local supervision and anticorruption departments at the city and provincial level.</li> <li>(iii) Increased transparency in the procurement process (see 4.7).</li> </ul>
4.2 Lack of clarity in responsibility for anticorruption measures.	Low	<ul style="list-style-type: none"> <li>(i) ADB contracts to contain clauses to make contractor responsibilities and consequences clear.</li> <li>(ii) PAM includes anticorruption responsibilities, measures and procedures.</li> </ul>

<b>Risks</b>	<b>Risk Assessment</b>	<b>Mitigation Measures or Risk Management Plan</b>
4.3 Failure to enforce anticorruption measures.	Medium	<p>(i) The government has introduced an integrity program that targets prevention and punishment.</p> <p>(ii) Project capacity building program to include the strengthening of governance mechanisms.</p>
4.4 Numerous standards for the behavior of public officials and complex language of regulations.	Low	<p>(i) ADB guidelines and loan and contract documents will stipulate what constitutes unacceptable behavior.</p> <p>(ii) Anticorruption training is identified as a capacity building need under the loan.</p>
4.5 Constrained capacity to conduct effective audit of ADB-financed projects.	Low	<p>(i) Scope of project audit and audit certification to include compliance with loan conditions.</p> <p>(ii) ADB to receive and review annual audit reports (including any appropriate follow-up).</p>
4.6 Existence of conflicts of interest.	Medium	<p>(i) No apparent institutional conflicts of interest have been identified during the project preparations.</p> <p>(ii) Local government regulations require officials to declare conflicts of interest.</p>
4.7 Lack of transparency.	Low	<p>(i) Loan conditions to promote greater transparency and public availability of information, including the project procurement plan and contracts awards.</p> <p>(ii) Government officials in the PRC are now being progressively required to declare personal and family wealth.</p>
Overall corruption and governance failure risk assessment	Low to Medium	
Overall Implementation Risk	Low to Medium	



## **Appendix 13: LIST OF PROPOSED LOAN ASSURANCES**

### **I. PARTICULAR COVENANTS (for Section 2 of the Project Agreement)**

#### **A. General Implementation Arrangements**

1. Nanning Municipal Government (NMG) shall carry out the Project with due diligence and efficiency, and in conformity with sound applicable technical, financial, business, and development practices.
2. In the carrying out of the Project and operation of its facilities, NMG shall perform all obligations set forth in the Loan Agreement to the extent that they are applicable to NMG, and all obligations set forth in the Schedule to this Project Agreement.
3. NMG shall make available to the Project implementing agencies, promptly as needed, and on terms and conditions acceptable to Asian Development Bank (ADB), the funds, facilities, services, land and other resources as required, in addition to the proceeds of the Loan, for the carrying out of the Project.
4. In the carrying out of the Project, NMG shall or shall cause the Project implementing agencies to employ competent and qualified consultants and contractors, acceptable to ADB, to an extent and upon terms and conditions satisfactory to ADB
5. NMG shall carry out the Project in accordance with plans, design standards, specifications, work schedules and construction methods acceptable to ADB. NMG shall furnish, or cause to be furnished, to ADB, promptly after their preparation, such plans, design standards, specifications and work schedules, and any material modifications subsequently made therein, in such detail as ADB shall reasonably request.

#### **B. Procurement**

6. Except as ADB may otherwise agree, NMG shall procure all items of expenditures to be financed out of the proceeds of the Loan in accordance with the provisions of Schedule 4 to the Loan Agreement. ADB may refuse to finance a contract where any such item has not been procured under procedures substantially in accordance with those agreed between the Borrower and ADB, or where the terms and conditions of the contract are not satisfactory to ADB.

#### **C. Insurance**

7. NMG shall take out and maintain with responsible insurers, or make other arrangements satisfactory to ADB, for insurance against such risks and in such amounts as shall be consistent with sound practice.
8. Without limiting the generality of the foregoing, NMG undertakes to insure, or cause to be insured, the Goods to be imported for the Project against hazards incident to the acquisition, transportation, and delivery thereof to the place of use or installation, and for such insurance any indemnity shall be payable in a currency freely usable to replace or repair such Goods.

#### **D. Cooperation and Communications**

9. ADB and NMG shall cooperate fully to ensure that the purposes of the Loan will be accomplished. NMG shall promptly inform ADB of any condition, which interferes with, or threatens to interfere with, the progress of the Project, the performance of its obligations under this Project Agreement, or the accomplishment of the purposes of the Loan.

10. ADB and NMG shall from time to time, at the request of either party, exchange views through their representatives with regard to any matters relating to the Project, NMG and the Loan.

#### **E. Reporting and the Provision of Information**

11. NMG shall furnish to ADB all such reports and information as ADB shall reasonably request concerning (i) the Loan and the expenditure of the proceeds thereof, (ii) the items of expenditure financed out of such proceeds, (iii) the Project, (iv) the administration, operations and financial condition of NMG, and (v) any other matters relating to the purposes of the Loan.

12. Without limiting the generality of the foregoing, NMG shall furnish to ADB periodic reports on the execution of the Project and on the operation and management of its facilities. Such reports shall be submitted in such form and in such detail and within such a period as ADB shall reasonably request, and shall indicate, among other things, progress made and problems encountered during the period under review, steps taken or proposed to be taken to remedy these problems, and proposed program of activities and expected progress during the following period.

13. Promptly after physical completion of the Project, but in any event not later than 6 months thereafter or such later date as ADB may agree for this purpose, NMG shall prepare and furnish to ADB a report, in such form and in such detail as ADB shall reasonably request, on the execution and initial operation of the Project, including its cost, the performance by NMG of its obligations under this Project Agreement, and the accomplishment of the purposes of the Loan.

#### **F. Record-keeping and Accounts**

14. NMG shall maintain, or cause to be maintained, records and accounts adequate to identify the items of expenditure financed out of the proceeds of the Loan, to disclose the use thereof in the Project, to record the progress of the Project (including the cost thereof) and to reflect, in accordance with consistently maintained sound accounting principles, its operations and financial condition.

15. NMG shall (i) maintain separate accounts and records for the Project; (ii) prepare annual financial statements for the Project in accordance with financial reporting standards acceptable to ADB; (iii) have such financial statements audited annually by independent auditors whose qualifications, experience, and terms of reference (TOR) are acceptable to ADB, in accordance with international standards for auditing or the national equivalent acceptable to ADB; (iv) as part of each such audit, have the auditors prepare a report (which includes the auditors' opinion on the financial statements, use of the Loan proceeds, and compliance with the financial

covenants of this Loan Agreement as well as on the use of the procedures for the imprest account(s) and statement of expenditures) and a management letter; and (v) furnish to ADB, no later than 6 months after the end of each related fiscal year, copies of such audited financial statements, audit report, and management letter, all in the English language, and such other information concerning these documents and the audit thereof as ADB shall from time to time reasonably request.

16. ADB shall disclose on its website the annual audited financial statements for the Project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt.

17. NMG shall enable ADB, upon ADB's request, to discuss the financial statements for the Project and its financial affairs where they relate to the Project with the auditors appointed pursuant to paragraph 16, item (iii) hereinabove, and shall authorize and require any representative of such auditors to participate in any such discussions requested by ADB. This is provided that such discussions shall be conducted only in the presence of an authorized officer of NMG, unless NMG shall otherwise agree.

18. NMG shall enable ADB's representatives to inspect the Project, the Goods and Works, and any relevant records and documents.

#### **G. Sustainability of Project Operations**

19. NMG shall, promptly as required, take all action within its powers to maintain its corporate existence to carry on its operations and to acquire, maintain, and renew all rights, properties, powers, privileges and franchises which are necessary in the carrying out of the Project or in the conduct of its operations. NMG shall at all times conduct its operations in accordance with sound applicable technical, financial, business, development and operational practices, and under the supervision of competent and experienced management and personnel.

20. NMG shall at all times operate and maintain its plants, equipment and other property, and from time to time, promptly as needed, make all necessary repairs and renewals thereof, all in accordance with sound applicable technical, financial, business, development, operational, and maintenance practices.

21. Except as ADB may otherwise agree, NMG shall not sell, lease or otherwise dispose of any of its assets, which shall be required for the efficient carrying on of its operations or the disposal of which may prejudice its ability to perform satisfactorily any of its obligations under this Project Agreement.

#### **H. Use of Loan Proceeds**

22. Except as ADB may otherwise agree, NMG shall apply the proceeds of the Loan to the financing of expenditures on the Project in accordance with the provisions of the Loan Agreement and this Project Agreement, and shall ensure that all items of expenditures financed out of such proceeds are used exclusively in the carrying out of the Project.

23. NMG shall promptly notify ADB of any proposal to amend, suspend, or repeal any provision of its constitutional documents, which, if implemented could adversely affect the carrying out of the Project or the operation of its facilities. NMG shall afford

ADB an adequate opportunity to comment on such proposal prior to taking any affirmative action thereon.

## **II. EXECUTION OF PROJECT (forms the schedule to the Project Agreement)**

### **A. Implementation Arrangements**

25. NMG shall ensure that the Project is implemented in accordance with the detailed arrangements set forth in the project administration manual (PAM). In the event of any discrepancy between the PAM and this Project Agreement, the provisions of this Project Agreement shall prevail.

### **B. Counterpart Funding**

26. NMG shall ensure that the counterpart funding required for successful Project implementation is timely allocated and provided, and shall cause the Project implementing agencies to provide their counterpart funding in a timely manner, including any additional counterpart funding required for any shortfall of funds or cost overruns. NMG shall also cause the Project implementing agencies to ensure that operation and maintenance of the facilities financed under the Project is fully funded without any delay.

### **C. Environment**

27. NMG shall cause the implementing agencies and each involved agency to ensure that the preparation, design, construction, implementation, operation, and decommissioning of the Project and its facilities comply with (i) all applicable laws and regulations of the Borrower and the Guangxi Zhuang Autonomous Region relating to environment, health, and safety; (ii) environmental safeguards; and (iii) all measures and requirements set forth in the initial environmental examination (IEE), environmental management plan (EMP), and any corrective or preventative actions set forth in a safeguards monitoring report.

28. NMG shall cause the implementing agencies to ensure that throughout project implementation, (i) any changes to the Project design are reviewed that may potentially cause negative environmental impacts; (ii) in consultation with ADB, environmental monitoring and mitigation measures are revised as necessary to assure full environmental compliance; and (iii) provide ADB within 60 days justification for any proposed changes to the mitigation measures required during design, construction, and operation.

29. NMG shall, and shall cause the implementing agencies to make available necessary budgetary and human resources to fully implement the EMP. NMG shall ensure that (i) the project implementation consultants are engaged in a timely manner, including a national environment specialist; (ii) the Xiangsihu Investment and Development Company (XIDC) contracts a licensed environmental monitoring institution to conduct periodic environmental impact monitoring in accordance with the approved monitoring plan; and (iii) the capacity building program described in the EMP is implemented as planned from the date of engagement of the consultants until project completion.

30. NMG shall submit annual environmental safeguards monitoring reports to ADB during the implementation of the Project, and disclose relevant information from

such reports to respective affected people under environmental safeguards promptly upon submission.

31. NMG shall ensure that the implementing agencies implement a “Green Public Procurement” policy, with reference to the Public Procurement List of Energy-Saving Products (NDRC & MOF, 2011, or as updated) and Public Procurement List of Environmental Labeling Products (MEP & MOF, 2011, or as updated), where these are applicable. Furthermore, NMG shall cause the implementing agencies include in equipment procurement bidding documents the detailed requirements for this Green Public Procurement.

32. NMG shall cause the two TVET schools that are undertaking the Works contracts under the Project to develop an environmental management system (EMS) as one of their campus activities. The EMS is to be based on the Campus Greening Policy Framework defined in the IEE. For that purpose, NMG shall ensure that EMS consulting specialists are engaged in a timely manner.

33. NMG shall cause XIDC, in contracting of design institutes, to include green campus measures in the detailed design options to ensure that all buildings are designed in compliance with relevant design standards and codes for energy-efficient, safe and green public buildings, including, but not limited to, GB 50099-2011 (Code for Design of Schools); GB 50016-2006 (Code of Design on Building Fire Protection and Prevention); DB45/T392 (Energy Conservation Design for Public Buildings) and other applicable national design codes. NMG shall further cause XIDC to ensure that low volatile organic compounds emitting materials will be used to ensure high indoor air quality.

34. NMG shall ensure that by the end of 2015, all wastewater generated by the campus of NHS is intercepted and is conveyed for treatment at the already operational Jiangnan wastewater treatment plant (WWTP). NMG shall further ensure that by the end of 2015, all wastewater generated by the campus of Nanning No.4 Vocational Education Secondary School is intercepted and conveyed for treatment at the Wuxiang WWTP, which is currently under construction.

#### **D. Gender and Social Action Plans**

35. NMG shall, and shall cause the implementing agencies to implement the gender action plan and social action plan, which include agreed actions for ensuring social, ethnic minority, and gender inclusion of students and staff. Gender actions and targets include (i) development of Competency Based Curriculum gender-inclusive materials; (ii) at least 40% of teachers and managers attending international or domestic study tours will be women; (iii) disaggregation of project performance management system (PPMS) data analysis and reporting by gender, ethnic group, and poverty status; and (iv) ensure that a national social and gender expert is appointed with TOR as stated in the PAM. Ethnic minority inclusive actions include (i) development of a pilot kindergarten curriculum on ethnic minority culture and social inclusion; (ii) development of a human resources strategy to promote recruitment of students in rural and ethnic minority areas; and (iii) inclusion of ethnic minority indicators on Tracer Studies.

36. NMG shall, and shall cause the implementing agencies, with advice from the national social and gender expert, to ensure that the impact on ethnic minority students, rural students, and poor students (gender disaggregated) during project implementation is systematically monitored and reported.

## **E. Resettlement**

37. NMG shall cause XIDC and the TVET institutions to ensure that all Project-funded works activity and equipment installation takes place on campuses that have been the subject of due diligence, in accordance with ADB Safeguard Policy Statement (2009).

## **F. Technical Vocational Education and Training Capacity Building**

38. NMG shall cause Nanning Education Bureau (NEB), Nanning Health Bureau (NHB), and the Project TVET institutions to implement the TVET improvement strategies as documented in the PAM and in conjunction with the appointed TVET consultant to review and suggest amendments to these strategies in advance of the ADB project midterm review.

39. Within 3 months of loan effectiveness, NMG shall facilitate the establishment of advisory industry reference groups for the purpose of making TVET more demand led. The TOR of these reference groups are to be as documented in the PAM.

40. Within 3 months of loan effectiveness NMG will review and update as necessary the draft training plan contained in the PAM. Furthermore NMG will prepare a fully comprehensive and costed training implementation plan for the project as referred to in the PAM. No expenditure is to be incurred from the project capacity building training budget until this plan is approved by ADB. All training expenditure funded under the loan is to be in accordance with the agreed plan unless ADB give prior approval.

41. NMG shall cause NEB and NHB to ensure five-year plans for the TVET components for each project TVET institution are prepared within 3 months of loan effectiveness, and to prepare more detailed annual plans for the duration of entire of the implementation period. These plans are to include all relevant activities contained in the TVET strategies in the PAM.

42. NMG will facilitate the establishment of task-orientated working groups in both institutions, including (i) a working group for curriculum development; and (ii) a working group for teacher and nurse training. NMG, through NEB and NHB, as appropriate will decide appropriate membership and leadership arrangements and draw up the TOR for each working group within 3 months of loan effectiveness.

43. NMG, with the support of the TVET capacity building consultant, will undertake three studies as specified in the PAM to inform TVET policy development and improved practices. These being (i) review of barriers in access to TVET schools; (ii) impacts of ASEAN on employment opportunities and TVET provision in Guangxi Zhuang Autonomous Region; and (iii) expanding TVET for public social services: policy and program recommendations.

44. NMG shall cause the project TVET institutions to make relevant materials developed under the project available to NEB and NHB for dissemination purposes; such materials to include are (i) new curricula material; (ii) teacher training material; (iii) teaching guides; and (iv) lessons learned from pilot activities.



45. NMG shall cause the NEB and NHB to cooperate with the project TVET consultant in the preparation of dissemination and that those strategies, once agreed by ADB, are then implemented.

**G. Safeguards Provisions in Bidding Documents and Works Contracts**

46. NMG shall, and shall cause the implementing agencies to, ensure that all bidding documents and contracts for civil works contain provisions that require contractors to:

- (i) comply with the measures relevant to the contractor set forth in the IEE and the EMP (to the extent they concern impacts on respective affected people under environmental safeguards during construction), and any corrective or preventative actions (a) set forth in safeguards monitoring reports, or (b) subsequently agreed between ADB and NMG;
- (ii) make available a budget for all such environmental measures;
- (iii) provide the XIDC and relevant TVET school with a written notice of any unanticipated environmental risks or impacts that arise during implementation of the project that were not considered in the IEE and the EMP;
- (iv) take necessary actions to avoid interruptions to water supply, wastewater collection, electricity, and other utility services during the construction of the Project; and
- (v) reinstate pathways and other local infrastructure to at least their pre-project condition as soon as possible and no later than the completion of construction.

47. NMG shall, and shall cause the implementing agencies to, ensure that Works contracts include provisions to require the contractors to (i) not discriminate against people seeking work on the basis of age, provided they are capable of doing the work; (ii) provide equal pay for equal work, regardless of gender or ethnicity; (iii) advertise labor requirements for vacant positions in a timely manner prior to recruitment, in venues and languages that can reasonably be expected to be seen by interested men and women, regardless of age or ethnicity; (iv) provide non-temporary workers (i.e., those employed for over a month) with a written contract; (v) provide the timely payment of wages; (vi) use local low skilled labor, as applicable; (vii) comply with core labor standards and the applicable labor laws and regulations, including stipulations related to employment, e.g., health, safety, welfare and the workers' rights, and anti-trafficking laws; and (viii) not employ child labor.

48. NMG shall cause the implementing agencies to ensure that the Work contractors maintain records of labor employment, including the name, ethnicity, age, gender, domicile, working time and the payment of wages and ensure that the records are included in summary form in the PPMS. In order to ensure prospective contractors are warned in advance, the requirements of this clause are to be clearly specified in all relevant bidding documents.

49. NMG shall cause the implementing agencies to ensure that the contractors will (i) implement HIV/AIDS and sexually-transmitted infections awareness and prevention training for all employees; (ii) provide necessary measures to ensure the safety and health of its employees; (iii) together with the local centers of disease control, disseminate information on the risks, hazards, impacts, and prevention know-how on HIV/AIDS and STIs among the staff, workers on the construction sites, and the local community by means of information disclosure, education, and

consultation; (iv) take due care to ensure that solid and liquid wastes are appropriately disposed of in and around construction sites, or sites where the company might house employees; (v) in conjunction with the relevant local government and community leaders, hold a public meeting in each area prior to commencing construction to discuss issues associated with ensuring the safety of children in the vicinity of the construction site; and (vi) observe local customs concerning acceptable behavior toward the local population.

#### **H. Prohibited List of Investments**

50. NMG shall ensure that no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the ADB Safeguard Policy Statement (2009).

#### **I. Design and Construction Quality and Management**

51. NMG shall, and shall cause the implementing agencies to, ensure that all Works under the Project are designed and constructed in accordance with national standards and specifications and that the construction supervision, quality control, contract management, and completion inspection and acceptance follow all applicable national laws and regional and local regulations.

#### **J. Good Governance and Anticorruption**

52. NMG shall, and shall cause the implementing agencies to, (i) comply with ADB Anticorruption Policy (1998, as amended to date) and acknowledge that ADB reserves the right to investigate directly, or through its agents, any alleged corrupt, fraudulent, collusive or coercive practice relating to the Project; and (ii) cooperate with any such investigation and extend all necessary assistance for satisfactory completion of such investigation.

53. NMG shall, and shall cause the implementing agencies to, ensure that the anticorruption provisions acceptable to ADB are included in all bidding documents and contracts, including provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and implementing agencies and all contractors, suppliers, consultants, and other service providers as they relate to the Project.

54. NMG shall cause the implementing agencies to undertake the following anticorruption actions: (i) involving full-time officials from the relevant affiliate of the Discipline Investigation Bureau in the bidding, award, and implementation of contracts funded under the Project; (ii) introducing a dual-signing system, in which the contract winner signs an anticorruption contract with the employer when they sign and execute the contract; and (iii) periodically inspecting the contractors' Project-rela

55. In furtherance of the principles of transparency, participation, accountability and zero-tolerance for corruption, NMG shall disclose information on its government website that describes the Project in order to provide the public with information on the Project and its progress including setting out (i) the procurement plan and tracking of procurement contract awards; and (ii) relevant laws and regulations.

#### **K. Grievance and Redress Mechanism**

56. The NMG shall ensure that within 60 days following the Effective Date, a safeguards comprehensive grievance redress mechanism (GRM), acceptable to ADB, is established that includes a task force to investigate complaints on misuse of



funds and other irregularities. The GRM and the task force will (i) review and document eligible complaints of Project stakeholders; (ii) proactively address grievances; (iii) provide the complainants with notice of the chosen mechanism/action; and (iv) prepare periodic reports to summarize (a) the number of complaints received and resolved, (b) chosen actions, and (c) final outcomes of the grievances and make these reports available to ADB upon request. Separate under the comprehensive GRM will operate for environmental complaints as specified in the IEE and PAM.

#### **L. Project Performance Monitoring**

57. During Project implementation, NMG shall, and shall cause each implementing agency to, develop, in consultation with ADB, a PPMS including baseline performance monitoring, systematic Project performance monitoring, benefits monitoring and evaluation of each subcomponent. NMG shall, or shall cause the implementing agencies to, carry out surveys (i) at the start of Project implementation to establish required PPMS baseline data, and (ii) not later than six months after Project completion, to evaluate the Project benefits. Data to be compiled and analyzed for the purpose of performance monitoring and evaluation shall be in a format compatible with the PPMS as developed in consultation with ADB.

58. NMG shall cause each implementing agency to supply to Nanning project management office (NPMO) (i) monitoring reports relating to the implementation activities under this Project, and (ii) a semiannual report of the implementation of Project activities relevant to such implementing agency. NMG shall also cause the NPMO to conduct periodic and random monitoring of each Project component under the Project to determine the degree to which Project funds have been effectively and efficiently used to implement the Project, and achieve its objectives, outcomes, and its performance targets.

59. NMG shall further cause NPMO and the implementing agencies to ensure that if any unanticipated environmental, resettlement, and/or social risks and impacts arise during construction, implementation, or operation of the Project that were not considered in the IEE and the EMP, then the NPMO and/or the respective implementing agency must promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan.

#### **M. Change of Ownership, Organizational Structure, and Assets**

60. NMG shall cause the Project implementing agencies to ensure that in the event that (i) any change in ownership of any facilities financed under the Project; or (ii) any sale, transfer, or assignment of the responsibilities of any facilities financed under the Project is anticipated, ADB shall be informed and consulted at least 6 months prior to such anticipated change, sale, transfer, or assignment.

61. NMG shall cause the TVET Institutions to ensure that (i) no material organizational changes to, nor material asset transfers to or from the TVET Institutions be formally approved or implemented without the prior approval of NMG and prior consultation with ADB, if such changes would affect NMG's ability to perform their obligations under this Project Agreement; and (ii) any such change is carried out in a lawful and transparent manner.