

**PROJECT INFORMATION DOCUMENT (PID)
CONCEPT STAGE**

Report No.: AB2590

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| Project Name | Anhui Highway Rehabilitation and Improvement Project |
| Region | EAST ASIA AND PACIFIC |
| Sector | Roads and highways (100%) |
| Project ID | P099112 |
| Borrower(s) | PEOPLE'S REPUBLIC OF CHINA |
| Implementing Agency | Anhui Provincial Communications Department Jinhuan Mansion 528 Tunxi Road Hefei Anhui China Tel: 86551-3623511 Fax: 86551-3623530 apcdpeo@mail.hf.ah.cn |
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1. Key development issues and rationale for Bank involvement

Anhui Province, with about 65 million people, is one of the most populous and densest provinces of China. Its density—of about 460 persons per km²—is more than three times of national average. The province is crossed by the Yangtze River and Huai River, and is adjacent to six provinces. Compared to its more successful neighbors to the east and north—Zhejiang, Jiangsu, and Shandong—Anhui has lagged markedly behind in socio-economic development, with a GDP per capita around one third the average level of those three provinces and two years in reduced life expectancy (73 vis-à-vis 75 years). Compared to those to the West and South—Hubei, Henan, and Jiangxi—Anhui has more similar—though slightly lower—socio-economic indicators. Within Anhui, there is great regional disparity, with most of the wealth concentrated in industrial regions close to the Yangtze River.¹

Anhui's geographic location—right to the west of Shanghai and Hangzhou metropolitan areas—makes the province a natural crossing area for the interchange of industrial products and technology between the more developed coastal provinces and those less prosperous to the center and west. In line with the Central Government's initiative of "Rise of Central China" which is

¹ Agricultural activities in Anhui vary according to the climate zones that the province crosses. North of the Huai He river wheat and sweet potatoes are grown, while south of that river it is rice and wheat instead. Natural resources of Anhui also include iron in Ma'anshan, coal in Huainan, and copper in Tongling. There are industries related to these natural resources (e.g., steel industry at Ma'anshan). One of the famous Anhui-based corporations is the automobile company Chery which is based in Wuhu.

part of the 11th Five-Year Program, defined as crucial for a coordinated and harmonized development between eastern, central and western areas, the Anhui Government has elaborated its own strategy of “Development to the East”, with an aim at expediting the incorporation of the various regions of Anhui to the comparatively more affluent regions of the Yangtze Delta, including those poorer areas (in the North and South of Anhui). Transport is one of the priorities in that development strategy.

Although the existing highway network of Anhui Province (of about 73,000 km) represents a sizable network in terms of kilometers per inhabitant, the average service level is limited due to the relatively low technical standards. Compared to the six surrounding provinces, the density of the network (km per population) is above the average, while the percentage of paved roads (as a proxy for the quality of the infrastructure) is the lowest.² This results in shortcomings of the existing highway network in meeting future transport demand. Other major issues of current highway network include: (i) low class connections on the East-forward corridors, (ii) poor quality of pavement and weak resistance against disaster, and (iii) unbalanced distribution of network across the provinces’ regions. The Government of Anhui has then advanced a plan for upgrading and reconstructing existing national and provincial trunk highway network to enhance the level of service and traffic capacity, while minimizing the needs for land acquisition. This plan—which is part of the national 11th Five-Year Program—involves several concurrent actions that build upon the progress made in the last few years,³ with highway and waterway investments for about US\$13 billion, as follows:

- Expansion of the expressway network to the Yangtze Delta and to regional central cities in the Province, reaching a total length of 3,500 km (from about 1,500 km completed at the end of 2005), realizing the goals of (a) three-hour travel from east to west and six-hour from north to south in the Province; (b) round trip on the same day from provincial-governed cities to Hefei; and (c) expressways accessible to 90% counties (cities) and one-hour trip to nearby expressway for all counties.
- The national and provincial trunk highway network will connect joint with this expressway network, forming a mutual support layout, which could provide forceful support and guarantee for provincial macro-economic development. The “515 Engineering” plan includes the rehabilitation and improvement of about 5,700 km of national and provincial trunk highways, with about US\$1.25 billion allocated to improving road geometries, structural strength, and pavement roughness. This program seeks to increase the level of service of the road infrastructure while minimizing land acquisition.
- A rural roads program to support the expansion of the network towards ensuring village access to the provincial network by 2010.⁴

² Source: Ministry of Communications, 2005, “China Highway and Waterway Transport Statistics Yearbook,” Beijing, People’s Republic of China.

³ During “the tenth five-year plan” period, Anhui Province increased investment and speeded up construction to realize rapid growth of transport infrastructure scale, substantially forming a comprehensive transport system framed by trunk railways, expressways, main navigation waterways and important airports.

⁴ As part of that strategy, the Provincial Government also intends to speed up investments for enhancing the condition of rural roads. The construction program of “bitumen (cement) road accessible to every village” has been started in 2006. By 2010, it is expected to form a rural road network which connects with national and provincial trunk highways, complies with rural socio-economic development, and meets living and production demands of

- Improvements to inland waterways to achieve 5,600 km of total mileage in inland navigation and 280 million-ton capacity of harbors.

In parallel to that investment program, highway maintenance in the Province requires to be strengthened, with enhanced methodologies and tools for the programming of preventive and periodic maintenance activities and improvements to the implementation of those activities. Albeit APCD claims that about 80% of the road network is in good condition, the information upon which this figure is based remains unreliable. APCD is aware of the importance of maintenance and seeks to establish improved road management and maintenance approaches, alongside those currently being implemented for the control of overloading, more efficient toll collection mechanisms, and a wide-ranging road safety program.

In these efforts, the Government of China has requested the World Bank to support the implementation of the rehabilitation and improvement of provincial/national trunk highways within Anhui Province and attain the full benefits of an efficient transport network by fostering its integration of villages and towns within the Province and of those networks with its neighboring provinces. The Anhui Provincial Government has further expressed its desire to secure a World Bank loan to complement the resources currently received by APCD. The Bank is technically and financially in a good position to contribute to such valuable and challenging investments. As a result of the previous two highway operations in Anhui Province, APCD wishes to continue with the value added cooperation through the Bank's support in financing projects that require broad strategic approaches and benefit from the exchange of international experiences and institutional strengthening mechanisms.

These interventions are in line with the Bank's FY06-10 Country Partnership Strategy to China in particular under the second pillar where the upgrading of transport infrastructure while improving network management is singled out as an element for reducing poverty, inequality, and social exclusion. Ultimately, these interventions would lead to improved productivity in Anhui Province, enhanced competitiveness, and increased inter- and intra-provincial trade, which will consequentially foster the development of Anhui and the provinces to the West.

2. Proposed objective(s)

The project aims to increase the effective use of the road infrastructure in the Anhui Province, improving the flows of passenger and freight traffic in an efficient and safe manner, to support the social and economic development of Anhui. This objective seeks to contribute to the higher goals of (a) improving living conditions across the province—particularly in the areas where poverty rates are higher—by enhancing the transport accessibility to economic opportunities and social services, and (b) stimulating higher economic growth in the Anhui Province by reducing transport costs within the province and between Anhui and, particularly, the neighboring provinces of Jiangsu and Zhejiang, to the East of Anhui.

rural populations. Investment on rural roads is expected to reach US\$2.25 billion, through support to the (re)construction and improvement of about 60,000 km of rural roads and realizing the goal of 80% of administrative villages having access to a paved road.

The focus on the road mode is justified given the heavy predominance of the road mode relatively to other modes, which implies that road transport costs constitute most of the transport-related costs and a key barrier for a more harmonious integration of the cities, counties, and towns in Anhui. As an essential interconnecting infrastructure, the national and provincial highway network in Anhui Province has an important implication to establish a multi-level and high-efficiency transport system in such a province.

3. Preliminary description

Building upon the investments and activities accomplished under the previous two World Bank projects in the province and in the context of strengthening the current overall framework for the management and upkeep of road assets in the Anhui Province, the project will include the following components:

- Improvement or upgrading of about 320 km of seven key provincial and national roads located on the Central-Eastern and Southeastern areas of the Province. These improvements or upgrades would include in some cases the duplication of existing road following the same alignment with specific bypasses in built-up areas (in order to minimize resettlement actions) or with short segments of new alignments if necessary to avoid hard topographical conditions. In two cases (roads S311 and S322), this component would include the construction of a limited number of kilometers to increase the transport capacity of the existing corridor or complete missing segments. The final definition of the scope of these two cases is subject to complementary analysis to be undertaken during project preparation and taking into account the following considerations: in-depth alternative analysis, achievement of positive economic rates of return and, consequently, scope and extent of new construction that reflect adequately environmental, social, and economic factors. The implementation of this component will be supervised by experienced firms (either local or foreign) with a technical expertise acceptable to the Bank. Full EIAs will be developed for three sub-projects under the improvement component (those on the two class I highways, and one the provincial highway S322), and simplified EIAs for the other four sections under the road improvement component. Resettlement actions plans (RAPs) will be prepared for all the roads under this component.
- Support to the provincial rehabilitation and maintenance program from 2007-2010 under the Eleventh Five-Year Program. The Bank contribution will help finance eligible investments under the rehabilitation component of the program. A list of 18 segments to be rehabilitated, for about 890 km, has been pre-identified. The maintenance program will be financed entirely with local funds, but the results indicators of the project will include specific target and its overall implementation will be reviewed by the Bank. This component includes the pertinent supervision activities of the rehabilitation works.⁵ Simplified EIAs will be

⁵ The improvement and rehabilitation works supported under the project are part of the above referenced 5,673 km reconstruction target to be reached by year 2010. The links identified for World Bank financing support were selected in compliance with the following criteria: (a) improving weak links in provincial trunk highway network and increasing network functions and efficiencies; (b) improving transport conditions in underdeveloped areas; (c) reflecting the macro-level strategic plan of provincial socio-economic development, i.e., the plan of “Developing to East”; (d) prioritizing the improvement of highways with severe deterioration and heavy traffic; and (e) minimizing resettlement and negative environmental impacts.

developed for all the road sections under the rehabilitation component. Though no resettlement is expected under this component, a resettlement policy framework will be prepared.

- A pilot on maintenance by contract. Under this component, APCD will implement maintenance by contract approaches in two highway sections of the provincial highway network. The final design of this component will be supported by a technical assistance, as further described below, that will help APCD with additional knowledge and analytical elements for exploring the alternative maintenance mechanisms as well as for the preparation and implementation of the selected contractual schemes.
- The institutional strengthening component would include:
 - a study on technological options for the recycling of pavement materials when a pavement needs to be rehabilitated;
 - the technical assistance for the pilot on maintenance by contract to provide the knowledge and analytical elements for exploring alternative mechanisms for contracting of maintenance activities as well as for the preparation, implementation, supervision, and assessment of the preferred contractual scheme under the pilot;
 - preparation of standardized environmental specifications;
 - support to the AHAB in strengthening the current Chinese Pavement Management System (CPMS);
 - the analysis of socio-economic impacts of the roads interventions under the project, towards establishing an enhanced knowledge base of the impacts of road investments on the livelihoods of the population living along the area of influence of those roads, through the incorporation of specific surveys and data collection at the time of undertaking the resettlement completion reports; and
 - a training program building upon those activities previously carried out under the Second Anhui Highway Project, for staff not only of APCD but also of city and county highway bureaus, and focusing chiefly on: road maintenance and asset management, road safety, project management, environmental protection and design and construction of scenic/ecological routes, highway planning and design, and highway information systems management. A formal evaluation of the training will be carried out with the application of the methodology to be agreed upon during project preparation.

The total project cost is estimated at about US\$ 425 million. The World Bank financing will amount to US\$ 200 million.

Economic Viability of the proposed Project: A preliminary economic evaluation of a sample of the roads initially identified to be included under the project shows a combined economic rate of return of 23.4%. The rehabilitation works would have an EIRR of 28.4% while the improvement component would have an EIRR of 17.9%. The project's investment components will enjoy a positive NPV of 3.628 billion RMB (or about US\$453 million) at a 12% discount rate. These figures were obtained through the evaluation of 17 roads for 25 road segments, totaling 1,209.2

km⁶. The analysis focuses on the actual and forecast data on traffic volume, vehicle operating cost savings and reduction in accident costs by using HDM IV model. Overall the project appears economically feasible based solely on the transport benefits that originate in the corridors. The possible additional benefits from enhanced access to social services, which are harder to quantify, would provide higher rates of economic returns.

4. Safeguard policies that might apply

The following table highlights the two safeguard policies that might apply under this project:

| Environmental Assessment (OP/BP 4.01) |
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| <p>This policy is triggered due to the environmental impacts related to road construction activities and potential environmental concerns during operation stage. Building upon the procedures and policies followed under previous World Bank-financed projects, the APCD has agreed to develop i) full EIA for three sub-projects under the improvement component (those on the two class I highways, and one the provincial highway S322), and ii) simplified EIAs for the other four sections under the road improvement component and for all the road sections under the rehabilitation component. Terms of Reference for EIAs and simplified EIAs were based on detailed screening of rights-of-way (ROWs) and the preparation of environmental alignment sheets. Standardized environmental specifications for construction management will be prepared and included in all bidding documents and contracts.</p> <p>As for the road rehabilitation component, the interventions under this program will take place within the right-of-way of existing roads, the safeguards policies under Chinese laws will likely comply with Bank requirements, and will require the preparation of simplified EIAs or environmental checklists.</p> <p>The three subprojects that require full EIA include substantial construction of new roads segments. One in particular, the S322, will traverse a mountainous area of high scenic value with tourism potential and with important remnants of native vegetation and fauna. After screening by the Bank team together the provincial government it was concluded that this subproject by itself would be more appropriately be categorized as A for environmental purposes. Therefore, the entire project is proposed as A Category according to OP 4.01. For all other sub-projects, most impacts will be circumscribed to existing right of ways and no significant, region-wide, or precedent-setting impacts are envisioned for any of the components. Most of the impacts will likely be easily managed through sound engineering design and construction practices.</p> <p>Based on the individual full and simplified EAs, an Integrated Environmental Assessment report in English will be prepared for the entire road program under guidelines and table of contents agreed with the Bank. All environmental management of construction activities will be included in a comprehensive set of technical environmental specifications that will be included in all bidding documents and contracts.</p> |

⁶ They correspond to the rehabilitation of 13 roads (18 segments, 890 km) and the improvement of 4 roads (7 segments, 319.2 km).

Involuntary Resettlement (OP/BP 4.12)

Resettlement Action Plans (RAP) will be prepared for the Highway Improvement Component. For the Highway Rehabilitation Component, no resettlement is expected, but this assumption will be further confirmed by reviewing the draft technical designs. Nonetheless, a resettlement policy framework will be developed for the rehabilitation component.

5. Tentative financing

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| Source: | (\$m.) |
| BORROWER | 225.3 |
| INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | 200 |
| Total | 425.3 |

6. Contact point

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