



# Report and Recommendation of the President to the Board of Directors

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Project Number: 38255  
December 2006

## Proposed Multitranche Financing Facility India: Uttaranchal State-Road Investment Program

Asian Development Bank

## NOTES

- (i) The fiscal year (FY) of the Government and its agencies ends on 31 March. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2006 ends on 31 March 2007.
- (ii) In this report, "\$" refers to US dollars.

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## **CURRENCY EQUIVALENTS**

(as of 15 November 2006)

Currency Unit	–	Indian rupee/rupees (Re/Rs)
Re1.00	=	\$0.02
\$1.00	=	Rs44.71

## **ABBREVIATIONS**

ADB	–	Asian Development Bank
AP	–	affected person
EARF	–	environmental assessment and review framework
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
FFA	–	framework financing agreement
FY	–	fiscal year
IEE	–	initial environmental examination
IPDF	–	indigenous peoples development framework
km	–	kilometer
LIBOR	–	London interbank offered rate
MFF	–	multitranchise financing facility
MIPMS	–	management information and project management system
NCB	–	national competitive bidding
NHDP	–	national highway development program
PBC	–	performance-based contract
PFR	–	periodic financial request
PIU	–	project implementation unit
PMGSY	–	Pradhan Mantri Gram Sadak Yojana
PMU	–	project management unit
PWD	–	Public Works Department
RDP	–	road development plan
RF	–	resettlement framework
RP	–	resettlement plan
SRTC	–	State Road Transport Corporation
TA	–	technical assistance

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## FACILITY AND INVESTMENT PROGRAM SUMMARY

<b>Borrower</b>	India
<b>Classification</b>	<p>Classification: General intervention Sector: Transport and Communication Subsector: Roads and highways Themes: Sustainable economic growth and governance Subthemes: Fostering physical infrastructure development, public governance, and anticorruption</p>
<b>Environmental Assessment</b>	<p>Category A. The environmental assessment and review framework (EARF) for the Uttaranchal State-Road Investment Program (Investment Program) is in Appendix 8. The summary environmental impact assessment report for Project 1 and the EARF were submitted to the Board and publicly disclosed through the Asian Development Bank (ADB) Website on 17 July 2006.</p>
<b>Investment Program Description</b>	<p>The Investment Program is a multi-year program of financial support for the road subsector in the state of Uttaranchal to implement part of its road development plan, and to increase the road asset management capacity of the state's Public Works Department (PWD). The Investment Program will provide financing for seven discrete investment projects, which will be implemented sequentially over 10 years. Each project will have two main components as needed: infrastructure improvement (physical investment) and infrastructure management (nonphysical investment). The main collective outputs of the seven projects would be (i) 10,800 kilometers (km) of state roads—about two thirds of PWD's network—improved; and (ii) enhanced accountability and transparency of PWD.</p> <p>The first Project (Project 1) of the Investment Program is designed to help the State of Uttaranchal (Uttaranchal) (i) improve a subnetwork of roads, totaling about 570 km, for which pre-construction activities have been completed; (ii) initiate business process reengineering of PWD; and (iii) increase PWD staff's asset management skills.</p> <p>Support for business process reengineering will include updates, where necessary, to operating manuals, operationalization of the management information and project management system (MIPMS), and mainstreaming of strategic planning and new procedures. Staff skills will be improved through a long-term education and training program in leading-edge road infrastructure management techniques. Awareness and skills of the state road builders will also be enhanced.</p> <p>The Investment Program has a special feature to introduce a new method of works procurement. With this method, performance-</p>

based contracts (PBC) will be used to procure physical improvements and 3 consecutive years of maintenance thereafter. This method, which will be used for the first time by a state in India in an externally funded project, will increase the sustainability of the road network. In addition to savings in road maintenance costs, the benefits of PBCs include increased opportunities for private sector involvement. Cost savings would be derived from economies of scale and lower prices in return for long-term work assurances for contractors.

### **Multitranche Financing Facility**

ADB's financial support will be extended through a multitranche financing facility (the Facility).

The Facility will be provided in tranches to support separate projects of the Investment Program when they are ready for financing, provided that India and Uttaranchal are in compliance with the assurances to ADB, and the investments are in line with the framework financing agreement (FFA).

Each tranche may be financed under terms different from those of previous or subsequent tranches. The choice of financing terms will depend on the project, and ADB's financing policies at the time the tranche is legally documented.

If India requests from ADB any cofinancing or related assistance for the projects from the Facility, ADB may assist, subject to its related policies and procedures.

### **Rationale for the Facility**

More than 90% of intra- and intercity freight and passenger traffic in Uttaranchal moves by road. However, about 30% of the main arterials (state highways and major district roads) and more than 70% of the collector and distributor roads (other district roads and village roads)—about 65% of the road network under the jurisdiction of PWD—need to be repaired or rehabilitated. The primary reasons for the poor condition of the road network are inefficient road asset management (planning, budgeting, and supervision) and inadequate funding.

India and Uttaranchal envision a reduction in poverty and an increase in personal incomes by improving personal mobility and accessibility through increased investment in road infrastructure. The National Highway Development Program (NHDP) and the Pradhan Mantri Gram Sadak Yojana (PMGSY) Program are important features of the India's economic development and poverty reduction strategy. Uttaranchal has prepared a road development plan (RDP) to guide its investment in roads. Investments under the RDP include 7 sequential projects to be implemented under this Facility between 2007 and 2017.

The estimated cost of implementing the RDP is \$1.2 billion.

According to the investment program in the RDP, an increase of approximately 80% in the current level of annual funding would be required over the next 10 years. While improved planning procedures, new construction and maintenance standards, and increased supervision and monitoring can help reduce future expenditure, the forecast level of state and central government financing would be inadequate to implement the RDP fully. More than 90% of Uttaranchal's population and the two main drivers of the economy—agriculture and tourism—depend on road transport for intra- and intercity, as well as inter-village, conveyance. As such, failure to implement fully the multi-project RDP would perpetuate rural remoteness and poverty, and exacerbate the outward migration of labor.

Uttaranchal is committed to financing the RDP through a combination of central, state, and external sources. India has requested financial support from ADB to meet part of Uttaranchal's external resource needs, in accordance with ADB's road sector strategy for India. This Investment Program has been conceptualized and included in the India country strategy and program update (2006–2008) to help Uttaranchal achieve its poverty reduction and economic development goals by financing part of the infrastructure and institutional capacity development costs of the RDP.

Uttaranchal requires periodic funding in tranches corresponding to the sequential projects of the RDP. A multitranche financing facility from ADB is best suited to meet this need. It would allow Uttaranchal to commit to its multi-year investment plans with a degree of certainty about the source of financing, and borrow incrementally according to the development road map. Such a facility also would demonstrate ADB's long-term commitment to development, while closely monitoring progress of the road network and guiding development on a project-by-project basis.

## **Impact and Outcome**

The Investment Program will have an incremental, positive long-term impact on Uttaranchal's economy and living standards of the rural population. The principal outcomes of the physical investments under the Investment Program will be increased efficiency, safety, comfort, and reliability of inter- and intra-state transport services, and lower road maintenance costs. The nonphysical investments of the program would lead to (i) increased satisfaction among road users; (ii) more opportunities for private sector participation; (iii) more synergy benefits for the parallel road development programs; and (iv) improved governance. Together, the investments would increase mobility and accessibility to educational and health services, employment opportunities, and markets for the community and enterprises in rural and urban areas of Uttaranchal.



**Cost Estimates**

The Investment Program is estimated to cost \$830.0 million. The cost of Project 1 is estimated at \$74.0 million.

**Financing Plan**

<b>Source</b>	<b>Total</b>	<b>%</b>
<b>Investment Program:</b>		
Asian Development Bank	550.0	66
India	280.0	34
<b>Total</b>	<b>830.0</b>	<b>100</b>
<b>Project 1</b>		
Asian Development Bank	50.0	68
India	24.0	32
<b>Total</b>	<b>74.0</b>	<b>100</b>

**Multitranche Financing Facility Amount and Terms**

The maximum financing amount available under the Facility is \$550 million. It will be provided in individual tranches from ADB's ordinary capital resources.

Each tranche will be no less than \$50 million, and will be used to finance infrastructure development and capacity development needs identified under each Project. India will provide the proceeds of the loans under the Facility in local currency to Uttaranchal on terms and conditions applicable to its own lending modalities. Uttaranchal will bear the foreign exchange risk on the loans.

India will cause the proceeds of each tranche to be applied by Uttaranchal to finance expenditures of the Investment Program, in accordance with conditions set forth in the FFA and the legal agreements for each tranche.

**Period of Utilization**

The last date on which any disbursements under any tranche may be made will be 31 December 2017. The last periodic financing request (PFR) is expected to be submitted no later than 1 May 2012. The availability period will lapse 12 months from the date of ADB Board approval of the Facility, unless by such time the legal agreements for the first tranche under the Facility are signed and made effective.

**Executing Agency**

PWD

**Implementation Arrangements**

Uttaranchal has established a project management unit (PMU) to monitor, evaluate, report, and serve as its representative for the Investment Program. Site-level management of works and related activities of each contract package will be assigned to one or more project implementation units (PIUs). The PIUs will be reporting to the project director of the PMU.

A steering committee chaired by the chief secretary of Uttaranchal, and comprising the secretary of PWD and secretaries of key state

agencies, has been set up to monitor the implementation of Investment Program. It will be functional within 3 months of effectiveness of the first loan.

A road board chaired by the secretary of PWD, and comprising key road sector stakeholders, will be established to serve as a medium for gaining the perspective of road users and sharing information on the outcomes of the Investment Program.

Starting from Project 2, the PMU will prepare and appraise projects according to the frameworks and safeguards agreed with ADB. ADB then will conduct a due diligence analysis of each appraised project and the corresponding PFR. The PMU will finalize PFR, with any modifications and revisions required by ADB, and submit to ADB through India.

As the Executing Agency, PWD, in consultation with ADB, will engage independent external firms to conduct annual financial audits of project and investment program accounts and procurement, in keeping with its commitment to increase transparency and good governance.

## **Procurement**

Procurement of works to be financed from the Facility will be carried out using national competitive bidding (NCB) procedures and post-qualification method, in accordance with ADB's *Procurement Guidelines* (April 2006), as described in the procurement plan for the Investment Program as amended from time to time (Appendix 7). The procurement plan may be revised and amended, as necessary, during implementation of the Investment Program. The maximum amount of a civil works contract procured through NCB procedures will be set initially at \$10.0 million, and will be reviewed during implementation.

All works will be procured under PBCs. ADB's standard review and approval procedure will be used for procurement in Projects 1 and 2 of the Investment Program. PWD will submit the documentation, as specified in the *Guidelines*, for ADB's review and approval before awarding the *Procurement* contracts. ADB may allow post facto approval procedures starting with Project 3, if Uttaranchal is deemed to have followed satisfactorily the procedures in Projects 1 and 2.

## **Advance Contracting and Retroactive Financing**

Management has approved advance contracting and retroactive financing for projects to be financed from the Facility.

## **Consulting Services**

Consultants will be used for design and construction supervision of all roads, and for technical and other specialist support to the PMU. PWD will engage program support consultants individually or through consulting companies. Supervision consultants in Project 1 would provide about 1,000 person-months of inputs. In addition,

PWD would procure about 90 person-months of services from program support consultants. The consultants financed from the Facility would be selected and engaged in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time to time), and other arrangements for recruitment of national consultants acceptable to ADB.

## **Benefits and Beneficiaries**

The main immediate benefit streams of the Investment Program include savings in vehicle operating costs, travel time, and maintenance costs stemming from the physical improvements. However, a large part of the road network lies in rolling terrain at high altitudes, which makes the costs of construction and maintenance generally higher than in level terrain. As such, the net benefits in the initial years are not expected to be high. Moreover, many direct and indirect benefits from the nonphysical parts of the Investment Program are not expected until the latter years. These benefits include (i) systematic planning and programming; (ii) staff training; (iii) improved financial management and governance; and (iv) PBCs. The adoption of PBCs can generate savings of up to 20%. Additionally, PBCs would encourage innovations in materials and equipment.

Despite the relatively small benefits, as well as the high cost of physical works due to terrain conditions, the economic rate of return of Project 1 is 16.3%, and the net present value at a 12% discount rate is \$14.4 million equivalent. The poverty impact ratio of Project 1 is 0.30.

The roads to be improved under the Investment Program are spread across all 13 districts of the state, and would be accessible to about 3.5 million people living in adjacent villages. The physical works planned under the Investment Program will require about 8.4 million person-days of input. Project 1 would require about 900,000 person-days of direct input from unskilled workers. Moreover, about \$7.5 million in benefits would accrue to road users in the form of travel time savings from Project 1.

## **Risks and Assumptions**

The main risk of poor performance of the Investment Program arises from possible project preparation delays, implementation delays, and low quality of physical outputs. To minimize this risk, ADB has agreed on a feasible schedule and a systematic procedure for PFR submissions. Projects have been scheduled and sequenced to allow the capacity enhancement initiatives, including staff training, to take effect. Consultant support is provided to PWD to help anticipate the factors in the critical paths of project implementation schedules, and to take advance contracting to minimize such delays. The planned engagement of consultants for supervision of works, safeguard monitoring, and the opportunities to select contractors from a larger pool due to the increased size of the contract packages will reduce the risk of poor quality.



## **I. THE PROPOSAL**

1. I submit for your approval the following report and recommendation on a proposed multitranche financing facility (the Facility) to India for the Uttaranchal State-Road Investment Program<sup>1</sup> (Investment Program).

## **II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES**

### **A. Performance Indicators and Analysis**

2. Uttaranchal's transportation system, comprising road, rail, and air, does not meet adequately the current demand for intra- and intercity passenger and freight movement. Air and rail transport serve the intercity market, while road transport serves both interstate and intrastate markets. The only scheduled air service<sup>2</sup> is between the state capital Dehradun and New Delhi, and is infrequent and unreliable. Roads connecting the four rail termini inside the southern fringe of the state are inadequate to offer intermodal or multimodal freight and passenger services. Consequently, more than 90% of the passenger and freight traffic moves by road.

3. The road network is made up of about 36,000 kilometers (km) of links ranging from two-lane highways to foot paths. Public investment in roads has risen from about \$91 million in 2001 to \$150 million in 2006. Yet, about a quarter of the state's small villages and habitations are unconnected or only seasonally connected to collector and distributor roads. The Public Works Department (PWD) of Uttaranchal is responsible for planning, designing, constructing, and maintaining about 17,000 km of the network roads,<sup>3</sup> of which about 7% are built to two-lane standards and around 60% are paved. PWD performs routine maintenance, and all capital works are outsourced to private contractors through competitive bidding. The average service life of a rehabilitated road has remained between 3 and 4 years, about half the international benchmark, largely due to the poor construction and maintenance.

4. About 30% of the main arterials (state highways and major district roads) and more than 70% of the collector and distributor roads (other district roads and village roads)—about two thirds of PWD's network—need to be repaired or rehabilitated. The poor surface condition, coupled with low capacity due to the narrow alignments in hilly terrain, seasonal traversability of roads at higher altitudes, and increasing traffic, is causing speed and reliability of transport services to decline gradually. The resulting delays are limiting the growth of the agriculture sector in particular, which contributes one third of the state's net domestic product and employs 58% of the workforce. Reportedly, around 75% of the state's fresh produce reaches the markets. The tourism industry, which depends heavily on visitors to some of the country's most revered shrines in the northern parts of the state, also is suffering due to the lack of year-round access to those locations. Consequently, the earning potential of small farmers and businesses remains low, and poverty persists in the rural areas.

5. Vehicle registration data shows that the number of motor vehicles has increased at an average annual rate of about 15% since 2001. The rise in the two- and three-wheelers in the cities and townships has fueled a large part of that increase. At the end of January 2006, the

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<sup>1</sup> The design and monitoring framework is in Appendix 1.

<sup>2</sup> Introduced in 2004.

<sup>3</sup> Comprising 437 km of state roads, 1,369 km of major district roads, 6,910 km of other district roads, 5,631 km of light vehicle roads, and 2,633 km of village roads.

number of registered vehicles in the state had reached about 650,000, with two- and three-wheelers accounting for more than three quarters of that total. State agencies have indicated corresponding increases in network traffic in the past 3 years. The average daily traffic on selected roads, estimated from 7-day counts taken during the Investment Program preparation,<sup>4</sup> ranged from 100 to 700. This confirms that volume is correlated to road quality (i.e., some major district and other district roads in better condition carry more traffic than the higher class state highways in poor condition), not the class of road.

6. State authorities have reported that road freight and passenger services are available in more parts of the state than in 2001. While freight transport operators in the state are entirely private, the State Road Transport Corporation (SRTC) and private operators provide passenger services. Service quality offered by private operators is not significantly different from SRTC's services. SRTC provides mostly line-haul services on 35 major routes using conventional buses, while private operators, under a regime of permits issued by state transport authorities, provide both line-haul and door-to-door services using pickup trucks. SRTC has published fare schedules and timetables, while private operators' services are unscheduled, "on-demand", costlier, and also carry freight. Surveys conducted as part of Investment Program preparation have showed that, even on routes operated by SRTC, passengers rely more on costlier private transport due to the low frequency of SRTC services. The higher fares of private operators, many of whom are individual vehicle owners, are partly a result of the added convenience of more direct services. In addition, the permits, which limit the number of passengers that each operator can carry and the routes on which they can operate, also contribute to the higher fares. Vehicle owners have formed associations in their operating areas to lobby Uttaranchal for better roads, more flexible permits, and lower taxes to enable them to increase capacity and improve the quality of service.

7. Intercity freight is transported in two-axle trucks, which constitute the bulk of the commercial vehicles registered in the state. An increase in multi-axle vehicles has been noted on state highways since the introduction of the axle-based taxes in 2005. Field observations, surveys, and personal interviews have indicated that demand for intercity freight services is significantly higher than the supply. Specialized vehicles, such as freezer trucks and semi-trailer trucks, are in particularly short supply. This, in concert with rising fuel prices, poor condition of road surfaces, accidents, and inadequate financing for truck owners, has caused the cost of road transport to rise substantially in the past 2 years. Nationally, transport costs on average account for nearly one third of the total product cost, compared with 10% or less in more developed countries. This incremental factor cost constrains the expansion of rural industries and the progress of rural communities. A detailed analysis of the road subsector is in Appendix 2.

## **B. Analysis of Key Problems and Opportunities**

### **1. Constraints**

8. Despite the extensive length of the network, the road subsector has been unable to contribute adequately to economic growth due to the inadequacy of transport services between habitations and centers of economic and social activity. The relative inadequacy of the transport services is caused by the (i) hilly and rolling terrain; (ii) poor condition of the existing network roads; and (iii) missing links. Road transport is the only viable mode due to the terrain, which

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<sup>4</sup> The Investment Program was prepared between November 2005 and May 2006 with ADB support: ADB. 2005. *Technical Assistance to India for Uttaranchal State Roads*. Manila (TA 4607, approved on 1 July, for \$208,000).

also limits the directness of routes. However, the present approach to road infrastructure management has to be modified to improve the road conditions and provide the missing links.

9. Infrastructure management can be improved by better strategic state-wide planning. Currently, PWD's divisions (lowest operational level) are responsible for road development programming and budgeting. Those programs and budgets are transmitted through the circle and zone channels (the next higher administrative levels) to the office of the head of PWD. The head of PWD collates this information into an annual capital works and routine maintenance funding request, which is submitted to the state. The budget that the state approves is allocated to the divisions in proportion to the requests. However, capital works receive a higher priority than maintenance of existing roads.

10. Procurement procedures are another infrastructure management constraint. Although procurement is based on competitive bidding, the method of packaging works does not offer incentives, such as assurances of future work opportunities, which allow contractors to develop and improve quality. Contracts, typically valued between \$0.2 million and \$1.0 million, have attracted only local contractors. This has prevented PWD from achieving economies of scale and developing local contractors' capacity. Inadequate supervision of contractors, lack of monitoring of asset performance based on consistent standards and specifications, and the vast geographical scope of the operational zones also have affected the road network condition. A detailed assessment of the constraints and their implications are in Appendix 3.

## **2. Opportunities**

11. Inefficient transport and communications infrastructure increases transaction costs and constrains the national economy from realizing its full potential. As part of the strategy for improving transport sector performance, India has initiated a balanced program of road subsector development under the 10th Five Year Plan (2002–2007), which will continue under the 11th Five Year Plan (2008–2012). The program aims to increase the capacity of the road network, as well as improve (i) maintenance of rural roads, (ii) road safety, (iii) riding quality of national highways, (iv) rural connectivity with all-weather roads, and (v) access to intermodal terminals. The two main components of that program are the National Highway Development Program (NHDP),<sup>5</sup> and Pradhan Mantri Gram Sadak Yojana (PMGSY) Program.<sup>6</sup>

12. Uttaranchal's vision to "reach a level of economic development that would generate employment and income opportunities for its people to achieve a good quality of life and social progress while preserving the environment and nature."<sup>7</sup> Towards this end, Uttaranchal has announced an infrastructure plan to (i) double per capita income, (ii) halve the population living in poverty, (iii) arrest the migration of workers, and (iv) provide universal access to electricity and safe drinking water. The plan envisages investments in key components of the state's infrastructure system to stimulate agriculture, industry, and service industries; and create employment opportunities.

<sup>5</sup> Announced in 1998, NHDP was intended to upgrade 13,146 km to multi-lane standards between 2001 and 2007. It was expanded in February 2005 to seven phases. Phases III through VII are intended to upgrade an additional 45,000 km, and add a 1,000 km of new expressways, between 2005 and 2012.

<sup>6</sup> The program was initiated in 2000 by the Government of India with the aim of providing all-weather access from main thoroughfares to rural settlements with more than 250 people by constructing and improving the previously used foot paths and village roads.

<sup>7</sup> Uttaranchal: a state on the move. Additional Secretary & Infrastructure Development Commissioner, State of Uttaranchal.

13. Uttaranchal's vision for road infrastructure is "rapid and social upliftment of the population while simultaneously ensuring balanced regional development and spreading the accruing benefits evenly over all sections of the society."<sup>8</sup> To realize this vision, Uttaranchal formulated a draft road policy in 2005 with the objective of creating a road network that would provide (i) high-speed connectivity with the rest of the country, (ii) adequate and efficient connectivity to all the demand drivers (tourism, industries, agriculture, and urban centers), (iii) connectivity to all villages and/or habitations through roads and bridges, and (v) year-round service. The relevant state ministries are reviewing the draft road policy. The policy emphasizes preserving road network investments through asset maintenance strategies, including the wider use of performance-based contracts (PBC); and developing the capacity of PWD to support the policy objectives.

14. The draft road policy will be implemented through the road development plan (RDP) prepared by PWD in November 2005. The RDP outlines a multi-project program of physical improvements and maintenance strategies designed to (i) surface all network roads that are not surfaced; (ii) upgrade safety features on roads to meet Indian Roads Congress standards; (iii) provide road links to all social facilities that are more than 1.5 km from any habitation; (iv) provide road links to all tourist centers and 60%–70% of pilgrimage centers; (v) maintain 85% of the network roads in good condition by 2015; and (vi) outsource all maintenance works on a competitive basis through PBCs.

15. A study commissioned by PWD in 2005 demonstrated that substantial economies of scale can be gained from a well-executed RDP that is supported by stable, long-term financing. Accordingly, Uttaranchal intends to finance capital costs through external borrowings, and divert a higher portion of the state's funds to asset preservation. To boost preservation efforts, state taxes on multi-axel vehicles have been lowered with the intent of encouraging the replacement of two-axle vehicles by the more "pavement-friendly" multi-axel vehicles, which cause a quarter of the damage. The improvements to roads would encourage the shift to multi-axle trucks due to the expected lowering of operating costs and increased maneuverability.

16. Uttaranchal expects the RDP to increase the benefits of past and future investment under four national road development programs,<sup>9</sup> which depend on the level of the connectivity provided to them through the state highways and district roads. Of those four programs, PMGSY has enabled people in 60% of the 15,672 villages in the state to gain access to a main thoroughfare by direct or indirect all-weather links (paved roads). Another 1,935 villages have been identified for connections, of which 472 connections have been sanctioned by the Government of India. At the end of April 2006, 93 villages had been connected, and the rest were expected to be connected by 2010.

17. Parts of Uttaranchal's 2,107 km<sup>10</sup> national highway network that radiate from the southwest to the main commercial centers are scheduled to be upgraded or improved under Phases III and IV of the NHDP. Phase III civil works are expected to be completed by 2010. That will upgrade a 120 km section of National Highway 72, connecting Delhi and Dehradun, to four-lane divided highway standards. Under Phase IV, another 640 km of single-lane national highways will be upgraded to two-lane standards, and 780 km of two-lane national highways will be repaired or rehabilitated.

<sup>8</sup> Infrastructure Vision. State Government of Uttaranchal, 2005.

<sup>9</sup> Central Road Fund, Economic Importance, Inter-state Connectivity, and PMGSY.

<sup>10</sup> PWD manages 1,327 km and Border Roads Organization the rest.



18. Senior management of PWD is strongly committed to implementing capacity development measures needed to improve asset performance. An agreement has been reached to establish a road board to increase stakeholder participation and transparency of PWD operations. The State has approved establishing a central planning unit under the chief engineer, with a head of division and technical and administrative staff for (i) reviewing and updating the RDP according to input from the divisions and circles; (ii) setting performance standards; and (iii) monitoring infrastructure performance.

19. Uttaranchal's commitment to procuring works through PBCs demonstrates a greater emphasis on asset preservation. PWD has a broad understanding of the underlying direct benefits of PBCs. Fundamental to the success of the RDP, these benefits stem from reductions in (i) risk and the number of contract variations common in conventional contracts, (ii) in-house staff and equipment, and (iii) single-period plans and programs. In developed and developing countries, PBCs have achieved 10%–20% savings and encouraged technological innovation in the form of new materials and equipment. PWD also is aware of the initial challenges of setting performance standards, and contractor evaluation and monitoring. Further, it is willing to take the necessary action to overcome these challenges, as stated in Uttaranchal's transport policy. PWD is confident of rapidly acquiring the experience to engage professional contractors on a long-term basis to build and maintain good roads at predetermined standards to provide greater customer satisfaction.

### **3. Policy Dialogue**

20. Improving the physical condition of roads must be supplemented by nonphysical measures to enhance operational efficiency, such as (i) improved driver licensing procedures; (ii) awareness campaigns; (iii) increased enforcement of traffic laws; and (iv) emissions control. Moreover, improved roads cannot meet the mobility needs, or fill the mobility gaps, without better road transport and modal integration. In particular, the development of the logistics industry and provision of intermodal transportation facilities will be needed in the future to derive the full benefits of the investment in road improvements. The Asian Development Bank (ADB) will conduct a regular policy dialogue with the Executing Agency on these issues, and continue to review and assist Uttaranchal's efforts in key areas that emerge from the dialogue. Assistance will be provided through specific components of future projects in the road map and Investment Program.

### **4. ADB Strategy and Lessons Learned**

21. In the past 5 years, ADB's support to the road sector in India (Supplementary Appendix 1) has taken the form of project and sector loans to advance development programs for the national (NHDP), state, and rural (PMGSY) road network. The NHDP aims to increase mobility through the provision of better roads, while the state and rural roads programs seek to increase accessibility. Support for developing the capacity of road agencies is also a main component of ADB's overall transportation strategy in India. Since 2000, ADB has provided five loans to assist with the first two phases of the NHDP, which sought to increase safety and capacity of the intercity highways. ADB is now focusing on the subsequent phases (NHDP III, IV, V, VI, and VII), which are estimated to cost around \$40 billion. ADB recently provided support for state road network development in Madhya Pradesh and Chhattisgarh. In 2005, a facility was provided for the Rural Roads II Program.<sup>11</sup> Such support, provided through loans and technical

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<sup>11</sup> ADB. 2005. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to India for Rural Roads Sector II*. Manila.

assistance grants, has helped the agencies<sup>12</sup> restructure and improve the management and preservation of road assets, including new assets.

22. In developing its support for the road subsector, ADB has collaborated closely with other external funding agencies active in the transport sector in India. ADB and the World Bank have adopted a coordinated strategy for the road sector, which was prepared in March 2001 and updated in January 2002. Following this strategy, regular tripartite meetings are held with the Government to discuss road policy issues. ADB also meets regularly with its development partners, shares experiences, and coordinates investment programs.

23. The implementation of ADB-financed road development projects in India over the past 5 years have been delayed due largely to lengthy environmental and social safeguard approval processes. In particular, the need for full payment of compensation to affected persons and complete clearance of the site before the award of civil works contracts have delayed implementation. The Investment Program is classified as environmental category A, Involuntary Resettlement impact category A, and Indigenous Peoples category B, according to ADB's classification criteria. However, improvements to the 10,800 km of roads under the Investment Program are not expected to have irreversible or permanent negative environmental impacts, which would require mitigation measures or extensive monitoring that cause delays. Further, it will not require significant land acquisition or resettlement of persons, and will not affect indigenous peoples.

## **5. Need for ADB Support for the Investment Program**

24. According to the RDP, approximately \$120 million of additional annual funding, above the current budget, will be needed in the next 10 years to meet the road condition targets. While improved planning and budgeting procedures, new construction and maintenance standards, and increased supervision and monitoring can help reduce future expenditures, the forecast level of state and central government financing would be inadequate to implement fully the RDP. More than 90% of Uttaranchal's population and the two main drivers of the economy—agriculture and tourism—depend on road transport for intra- and intercity, as well as inter-village, conveyance. As such, failure to implement fully the multi-project RDP would perpetuate rural remoteness and poverty, and exacerbate the outward migration of labor. Uttaranchal, therefore, plans to finance the RDP through a combination of central,<sup>13</sup> state, and external sources.

25. India has requested financial support from ADB to meet Uttaranchal's external resource needs, in accordance with ADB's road sector strategy for India. The Investment Program has been conceptualized and included in the India country strategy and program update (2006–2008) to help Uttaranchal achieve its poverty reduction and economic development goals by financing part of the infrastructure and institutional capacity development costs of the RDP. Uttaranchal requires periodic funding in tranches corresponding to the sequential projects of the RDP. A facility from ADB is best suited to meet this need. It would allow Uttaranchal to commit to its multiyear investment plans with a degree of certainty about the source of financing, and borrow incrementally according to the development road map. In turn, a facility would demonstrate ADB's long-term commitment to development, while closely monitoring progress of the road network and guiding development on a project-by-project basis.

<sup>12</sup> Public Works Departments of Madhya Pradesh and Chhattisgarh.

<sup>13</sup> Central sources include reallocation of state tax revenues, special grants, and budgetary allocations for special category states.

### **III. THE PROPOSED INVESTMENT PROGRAM**

#### **A. Road Development Plan**

26. The RDP is programmed for implementation as a series of seven discrete projects between 2007 and 2017, and specific capacity development initiatives. Its goal is to improve the 16,800 km state-roads network to national standards, and maintain it in a good condition. The RDP needs an investment of about \$1.2 billion over the next 10 years. The proposed Investment Program would finance part of the RDP.

#### **B. Impact and Outcomes**

27. The Investment Program will have a positive long-term impact on the state's economy and living standards of the rural population. The principal outcomes of the physical components under the Investment Program will be increased efficiency, safety, comfort, and reliability of inter- and intrastate transport services, and lower road maintenance costs. The nonphysical components of the Investment Program would lead to (i) increased satisfaction among road users; (ii) more opportunities for private sector participation; (iii) more synergy benefits for the parallel road development programs; and (iv) improved governance. Together, these investments would increase mobility and accessibility to educational and health services, employment opportunities, and markets for the community and enterprises in rural and urban areas of the state.

#### **C. Outputs**

28. The main outputs of the seven-project Investment Program would be (i) about 10,800 km of motorable state roads—almost two thirds of the PWD network—repaired or upgraded,<sup>14</sup> and maintained for a minimum of 3 years under PBCs; and (ii) a proactive and accountable PWD that is better equipped to manage road infrastructure.

29. Under the first project (Project 1) of the Investment Program, a subnetwork of 23 roads totaling about 570 km would be improved and maintained. Pre-construction activities have been completed for Project 1. These physical improvements will increase the percentage of the state-road network in good condition from 6% to 10% by 2008. The nonphysical outputs of Project 1 would be (i) staff skilled in essential areas of road asset management; (ii) a fully functional planning unit responsible for strategic-level programming; (iii) a road board to increase transparency and stakeholder participation; and (iv) revised accounting, planning, and asset management procedures based on a computerized management information and project management system (MIPMS) to increase the operational efficiency of PWD.

#### **1. Infrastructure Improvement Component**

30. The Investment Program outputs will be derived from the two main physical and nonphysical components—infrastructure improvement and infrastructure management. The infrastructure improvement component of each project will include five elements (i) consulting services for preparation of detailed project reports; (ii) physical improvements (repair, rehabilitation, reconstruction) to selected roads to elevate them to a good condition with higher

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<sup>14</sup> Includes improvements to transverse and cross-sectional drainage; minor widening; paving, repaving, or reconstruction of pavements; and stabilization of slopes.

capacity and safety standards; (iii) maintenance of improved roads according to predetermined performance standards; (iv) supervision of physical improvements and administration of maintenance contracts; and (v) consulting services for increasing the capacity of the program management unit (PMU) and project implementation units (PIU) to administer contracts and ensure compliance with safeguards. The roads to be improved under each project have been selected and prioritized using a multi-criteria ranking system based on the overall vision of Uttaranchal, and considering the financial, environmental, social, and technical constraints. The list of prioritized roads to be improved under the first four projects of the Investment Program is in Appendix 4.

## **2. Infrastructure Management Component**

31. The main objective of the infrastructure management component is to increase the sustainability of the investment by helping PWD restructure and adopt improved policies and operational procedures, and increase staff skills (Appendix 3). The infrastructure management component in Project 1 will include (i) assistance for the planning unit at PWD headquarters to start developing policies, setting performance targets, and programming to ensure road network quality and consistency; (ii) assistance to establish a fully functional road board<sup>1</sup> comprising representatives of PWD's senior management, transport users, automobile associations, transport operators, and road builders; (iii) revisions to operating manuals for planning, design, construction, and maintenance in line with the vision and mission of PWD; (iv) training in areas such as design review, performance monitoring, quality assurance, financial management, and the MIPMS to improve the staff's ability to execute tasks under the revised organizational structure and operational procedures; and (v) workshops to increase the awareness and skills of state civil works contractors on preparation and bidding for PBCs, quality control, overall construction, equipment and labor management, and environmental and social safeguard compliance.

### **D. Special Feature**

32. Physical works under the Investment Program would include improvements to road infrastructure and performance-based maintenance. This would be the first time a state agency in India has agreed to adopt PBCs in an externally funded program. Moreover, the Executing Agency has agreed to its gradual adoption as the default method of works procurement. PBCs can generate substantial savings, and increase opportunities for private sector involvement. The savings would be derived from economies of scale and lower prices in return for long-term work assurances for contractors. PBCs, which are generally larger and longer than conventional construction contracts, also help contractors spread the overhead, and provide incentives to build better roads to lower subsequent maintenance costs. That would encourage in-state contractors to consolidate or expand, and be more professional and innovative. PWD, on the other hand, can reduce the number of contracts and variation orders, which create opportunities for misrepresentation of work and ex gratia payments for expeditious processing.

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<sup>1</sup> The main objective of the road board is to provide a forum for the PWD to solicit input from key stakeholders on the performance of the road network. The terms of reference for the road board as well as its mandate will be finalized with the assistance of the infrastructure management consultants in Project 1.

## E. Investment Program Cost Estimates

33. The Investment Program is estimated to cost the equivalent of about \$830.0 million, including taxes, duties, and interest and other charges on the loans from ADB during construction (Table 1). Detailed cost estimates by expenditure category and financier of the Investment Program are in Appendix 5.

**Table 1: Cost Estimates for Investment Program**  
(\$ million)

Item	Total
<b>A. Base Costs<sup>a</sup></b>	
1. Infrastructure Improvement Component <sup>b</sup>	775.0
2. Infrastructure Management Component	2.0
<b>Subtotal (A)</b>	<b>777.0</b>
<b>B. Contingencies</b>	<b>31.0</b>
<b>C. Financing Charges During Implementation<sup>c</sup></b>	<b>22.0</b>
<b>Total<sup>d</sup></b>	<b>830.0</b>

<sup>a</sup> In mid-2006 prices for Project 1 and current prices at the start date of each remaining project.

<sup>b</sup> Includes social and environmental mitigation, resettlement, civil works, and consulting services for design and supervision.

<sup>c</sup> Includes interest during construction computed at the 5-year forward London Interbank Offered Rate plus a spread of 0.6%.

<sup>d</sup> Includes taxes estimated to be \$32.0 million.

Source: Asian Development Bank.

## F. Investment Program Financing Plan

34. India has requested financing of up to the equivalent of \$550 million from ADB's ordinary capital resources to help finance part of the Investment Program. The financing will be provided under the Facility in accordance with ADB policy.<sup>16</sup> The Facility will extend multiple loans of no less than \$50 million to finance part of the costs of the seven projects constituting the Investment Program. These will be subject to submission of related periodic financing requests (PFR) by India, and execution of the related loan and project agreements. India has entered into a framework financing agreement (FFA) with ADB, which satisfies the requirements set forth in Appendix 4 of the *Pilot Financing Instruments and Modalities* (footnote 17). India is required to comply with the FFA requirements. If India requests from ADB any cofinancing or related assistance for the projects under the Facility, ADB may assist, subject to compliance with its related policy and procedures.

35. The provisions of the ordinary operations loan regulations applicable to ADB's London Interbank Offered Rate (LIBOR)-based loans<sup>17</sup> will apply to each loan, subject to modifications, if any, that might be included under any loan agreement. India can choose between the eligible currencies and the interest rate regimes for each loan. The specific terms of each loan will be based on the related PFR, with interest to be determined in accordance with ADB's LIBOR-

<sup>16</sup> ADB. 2005. *Pilot Financing Instruments and Modalities*. Manila.

<sup>17</sup> ADB. 2001. *Ordinary Operations Loan Regulations Applicable to LIBOR-Based Loans Made from ADB's Ordinary Capital Resources*. Manila.

based lending facility. India has provided ADB with (i) the reasons for its decision to borrow under ADB's LIBOR-based lending facility; and (ii) an undertaking that these choices were made independently, and did not rely on any communication or advice from ADB.

36. India will provide the proceeds of the loans under the Facility to Uttaranchal on terms and conditions applicable to its own lending modalities. India will bear the foreign exchange risk on the loans. The financing plan for the Investment Program is in Table 2.

**Table 2: Financing Plan for Investment Program**  
(\$ million)

Source	Total	%
Asian Development Bank	550.0	66.0 <sup>a</sup>
India	280.0	34.0
<b>Total</b>	<b>830.0</b>	<b>100.0</b>

<sup>a</sup> This is below the assistance limit for India.

Source: Asian Development Bank.

## **G. Project 1 Cost Estimates and Financing Plan**

37. Project 1 is estimated to cost the equivalent of about \$74.0 million, including taxes, duties, and interest and other charges (Table 3). Detailed cost estimates by expenditure category and financier of Project 1 are in Appendix 5. A loan of \$50.0 million from ADB's ordinary capital resources will be provided under ADB's LIBOR-based lending facility to cover part of the cost of Project 1. The loan will have a 25-year term, including a grace period of 5 years. It will have an interest rate determined in accordance with ADB's LIBOR-based lending facility, a commitment charge of 0.75% per year, and such other terms and conditions as agreed in the FFA, and supplemented under the Loan Agreement. The financing plan is in Table 4.

## **H. Implementation Arrangements**

### **1. Program and Project Management**

38. As the Executing Agency, PWD of Uttaranchal has established a PMU for Project 1 to serve as its representative. That PMU will remain adequately staffed and functional for the duration of the Investment Program, and will be responsible for day-to-day operation of each subsequent project and the Investment Program. The PMU also will undertake periodic functions, such as (i) preparation of PFRs; (ii) announcement of projects; (iii) engagement of consultants and contractors; (iv) preparation of reports; (v) obtainment of approvals from ADB and government agencies; and (vi) supervision of consultants.

39. The PMU staff will comprise a project director and at least one planning and design engineer; procurement specialist; project finance manager; and an environment specialist and social and resettlement specialist to help implement the provisions of the resettlement framework (RF), indigenous peoples development framework (IPDF), and environmental assessment and review framework (EARF). The project director will report to the chief engineer who, as the head of PWD, would be responsible for approving submissions to ADB through the secretary of PWD. The secretary of PWD would be responsible for interdepartmental coordination, as well as overall supervision of the Investment Programs and individual projects.

**Table 3: Cost Estimates for Project 1**  
(\$ million)

Item	Total
<b>A. Base Costs<sup>a</sup></b>	
1. Infrastructure Improvement Component <sup>b</sup>	66.0
2. Infrastructure Management Component	2.0
<b>Subtotal (A)</b>	<b>68.0</b>
<b>B. Contingencies</b>	<b>4.0</b>
<b>C. Financing Charges During Implementation<sup>c</sup></b>	<b>2.0</b>
<b>Total<sup>d</sup></b>	<b>74.0</b>

<sup>a</sup> In mid-2006 prices.

<sup>b</sup> Includes social and environmental mitigation, resettlement, civil works, and consulting services for design and supervision.

<sup>c</sup> Includes interest during construction computed at the 5-year forward London Interbank Offered Rate plus spread of 0.6%.

<sup>d</sup> Including taxes estimated to be \$3.0 million.

Source: Asian Development Bank.

**Table 4: Financing Plan for Project 1**  
(\$ million)

Source	Total	%
Asian Development Bank	50.0	68.0
India	24.0	32.0
<b>Total</b>	<b>74.0</b>	<b>100.0</b>

Source: Asian Development Bank.

40. PWD will establish an adequate number of PIUs for each Project. Six PIUs have been designated for Project 1. Each PIU for a project will be headed by a superintending engineer, assisted by an executive engineer and at least two other technical staff, an accounts officer, and two administrative staff. The PMU will engage independent consultants, financed by Uttaranchal, for monitoring social and environmental safeguard implementation. The head of each PIU will liaise with the project director of the PMU on matters of implementation of the related project, and will be responsible for providing the information and data necessary for recording and reporting purposes.

41. The steering committee set up by Uttaranchal to monitor and guide the preparation of the Investment Program will remain properly constituted and functional during the implementation of the Investment Program. It will help the PMU to ensure effective and timely implementation of the Investment Program and projects. The chief secretary of Uttaranchal will chair the steering committee, which will comprise the secretary of PWD, and secretaries of key state agencies. The secretary of PWD will call meetings every quarter or earlier, if necessary.

42. PWD will establish a road board chaired by the secretary of PWD, and comprising at least one representative from (i) passenger and freight transport providers' associations; (ii)

state traffic police; (iii) state medical department; and (iv) any other agency that can provide input to increase the impact of the Investment Program and projects. The road board chair will convene bi-annual meetings, and minutes of the meetings and any actions taken will be made public. The salient aspects of the discussions and the main actions taken will be summarized in the quarterly project and Investment Program reports to ADB.

## **2. Project Preparation and Appraisal**

43. For Project 1, pre-construction activities, including those related to environmental and social safeguards, have been completed. Resettlement activities are expected to be completed before the commencement of works. For subsequent projects, PWD, with the assistance of the program support consultants, will prepare a detailed project report, including environmental, social, and economic assessments; and a PFR for each project. Further, each project will be prepared in accordance with the FFA, RF, IPDF, and EARF agreed with ADB; and criteria and procedures outlined in Appendix 4. After appraising each project for technical and economic feasibility, and compliance with safeguards and requirements, PWD will submit to ADB a summary appraisal report prepared in the format specified in the Investment Program administration memorandum, and the draft PFR. ADB will perform a due diligence analysis in accordance with the relevant policies and frameworks, and approve PWD's appraisal, subject to any amendments and revisions. If required by ADB, PWD will revise and amend the PFR, which it will submit through India to ADB for approval on or before the PFR due date in the FFA.

44. PWD simultaneously will carry out advance contracting, such as recruitment of consultants and selection of contractors as approved by ADB, to ensure timely implementation of each project.

## **3. Implementation Schedule**

45. The seven projects of the Investment Program and their subcomponents will be implemented over 10 years, as shown in the indicative implementation schedule in Appendix 6. The detailed schedules for the first four projects have been finalized, and the schedules for the remaining three projects will be completed during the implementation of Project 3. PWD will prepare detailed implementation schedules those projects during the pre-construction of the previous project.

46. Project 1 is expected to be implemented over 4.5 years, beginning April 2007. This schedule includes 1.5 years for the physical improvements and 3 years of performance-based maintenance. The infrastructure management component in Project 1 will be implemented over 2 years, commencing upon the effectiveness of the first loan.

## **4. Consulting Services**

47. **Design and Supervision of Works.** PWD will engage one or more private firms of engineering consultants for design and construction supervision of each project, except for Projects 1 and 2.<sup>18</sup> For these two projects, consulting firms will be engaged only for supervision. The number of construction supervision consulting service packages needed for each project will be determined based on the scope and geographic spread of the works packages. For Project 1, three packages will be used to procure the 1,000 person-months of input needed.

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<sup>18</sup> PWD has financed the design part of Projects 1 and 2 to increase project readiness.



The outline terms of reference for the supervision consultants for Project 1 are in Supplementary Appendix 3.

48. **Program Support.** PWD will engage experienced national consultants, financed under Project 1, to provide 92 person-months of inputs to help the PMU coordinate and facilitate timely processing and implementation of the Investment Program activities. The scope of services would include assistance to the PMU to (i) update the RDP; (ii) prepare the supporting documentation required for the future PFRs and PBCs; (iii) carry out technical reviews of the subproject designs, including safeguard compliance; and (iv) prepare reports for submission to ADB. Outline terms of reference for this consulting service are in Supplementary Appendix 4. Additional consulting services, if necessary, will be procured in subsequent projects to ensure timely implementation.

49. **Infrastructure Management.** PWD will engage an international consulting firm working with national experts to provide 98 person-months of assistance (14 person-months of international consulting services and 84 person-months of national consulting services) to the PMU to implement the infrastructure management component in Project 1. Outline terms of reference for these consulting services are in Supplementary Appendix 5. Additional consulting services, if necessary, will be procured in subsequent projects.

50. All consultants financed from the Facility would be selected and engaged in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time to time).

## 5. Procurement

51. Works to be financed from the Facility will be procured using national competitive bidding (NCB) procedures and post-qualification method, in accordance with ADB's *Procurement Guidelines* (April 2006, as amended from time to time), as described in the procurement plan for the Investment Program in Appendix 7. The bidding documents and procurement procedures agreed between PWD and ADB for use under advance contracting, as also set out in the procurement plan, will be followed for NCB. Any modifications to these will be agreed between PWD and ADB, and further set out in the procurement plan. The upper limit for a works contract to be procured through NCB procedures initially will be set at \$10.0 million, and will be reviewed during implementation.

52. The standard review and approval procedure described in ADB's *Procurement Guidelines* and the procurement plan (Appendix 7) will be used for procurement in Projects 1 and 2 of the Investment Program. PWD will submit the documentation, as specified in the guidelines, for ADB's review and approval before signing the works contracts. Indicative contract packages for Project 1 are described in Appendix 7.

53. If PWD is deemed to have adhered closely to the procurement plan and guidelines in Projects 1 and 2, ADB may allow subsequent NCB contract packages to be awarded without prior review to reduce procurement time. This would increase ownership of the process within PWD, as well as promote transparency, accountability, and good governance practices. This approval procedure requires that PWD (i) retains records of all procurement documentation, including copies of the signed contracts and the bid evaluation reports for inspection; (ii) provides ADB with a certified summary sheet describing the main aspects of the bid evaluation and contract award at the time of each contract award; (iii) engages an independent private firm to perform periodic audits of the procurement processes and contract awards; (iv) engages an

independent private firm of chartered accountants to audit the PMU annually; and (v) acknowledges that, if any contract award is found to be unacceptable, ADB may refuse to finance the contract. ADB will select contracts at random for review to ensure that all due processes have been followed.

54. Works in any project may be procured under PBCs or traditional works contracts if only improvement works are procured. ADB has reviewed the documents to be used for combined improvement and maintenance works procurement, which are based on ADB's standard bidding documents for small works and other national and international guidelines, and found them to be generally acceptable.

## **6. Advance Contracting and Retroactive Financing**

55. ADB management has approved advance contracting for components to be financed from the Facility. Up to 20% of the proceeds of a loan will be eligible for retroactive financing, provided that expenditures are incurred on works and consulting services of a project eligible for financing from the Facility, in accordance with agreed procedures and during the 12 months before the signing of the corresponding individual loan agreement. This approval, however, does not commit ADB to finance any ensuing project(s) from the Facility.

## **7. Anticorruption Measures**

56. ADB has assessed thoroughly the accounting and financial management policies, regulations, and practices of PWD (Supplementary Appendix 9); and agreed on measures to improve governance, accountability, and transparency. These measures include (i) independent external audits of contracts and accounts; (ii) the stakeholder road board; (iii) Web-based bid disclosures; and (iv) project performance tracking Web-based systems (i.e., MIPMS). ADB has explained to and discussed with Uttaranchal and PWD the *Anticorruption Policies and Strategies* (1998), as amended from time to time; and its right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive, or coercive practices relating to the projects under the Facility. Relevant provisions of ADB's *Anticorruption Policies and Strategies* (1998) and oversight measures are included in the loan regulations and the bidding documents for the projects financed from the Facility. In particular, all contracts financed by ADB from the Facility will include provisions specifying the right of ADB to audit and examine the records and accounts of PWD and all contractors, suppliers, consultants, and other service providers as they relate to the projects under the Facility.

## **8. Disbursement Arrangements**

57. The last disbursements under any tranche from the Facility must be made by 31 December 2017. The last PFR is expected to be submitted no later than 1 May 2012, provided that the availability period will lapse 12 months from the date of approval of the Facility by ADB's Board, unless by such time the legal agreements for the first tranche under the Facility are signed and made effective. For consulting services, procurement of equipment, and civil works contracts, loan disbursements will be in accordance with ADB's *Loan Disbursement Handbook* (January 2001), as amended from time to time, using direct payment and reimbursement procedures. The PMU may use the statement of expenditure procedure under the reimbursement procedure for individual payments not exceeding \$100,000, in accordance with ADB's *Loan Disbursement Handbook*, as amended from time to time.

58. The PMU will maintain separate bank accounts for each project. The funds drawn down in accordance with each PFR, with the corresponding counterpart funds, will be credited to the corresponding account. Each PIU for a project will submit contractor payment certificates to the PMU, which will arrange for the necessary bank transfers to be made into the contractors' nominated account(s). PWD will be responsible for monitoring the project bank accounts, and for reviewing monthly reconciliation of the accounts made by the PMU. PWD also will approve withdrawal applications.

## **9. Midterm Reviews**

59. ADB, India, and Uttaranchal will undertake a midterm review of the Investment Program in June 2012. A midterm review of Project 1 will be undertaken in January 2010. The timing of midterm reviews of subsequent projects will be agreed upon during the approval of each project. The reviews will focus on impacts, particularly those relating to institutional, administrative, organizational, technical, environmental, and social aspects, and poverty reduction. The projects' economic viability, and other relevant aspects that might impact performance, also will be assessed during the reviews. In addition, the reviews will examine the implementation progress for the sector reforms, policy development, performance of the road sector as a whole, and compliance with assurances in the FFA.

## **10. Accounting, Auditing, and Reporting**

60. Uttaranchal has agreed to adhere strictly to accounting, financial management, and corporate governance requirements during implementation of the Investment Program. PWD will assign to the PMU a professionally qualified finance manager, as well as an administrative assistant trained on the new computer-based system. The PMU will maintain separate records and accounts adequate to identify (i) the goods and services financed from the proceeds of each loan; (ii) the financing resources received; (iii) the expenditures incurred on the components of each project; and (iv) use of local funds. PWD will engage independent external auditors acceptable to ADB to audit consolidated project accounts annually, and provide opinions on the accounts and statement of expenditure operations. The state auditor general's office, which also maintains the accounts, will conduct its routine annual audits of PWD, as well as the projects and the Investment Program. The independent financial audits will enable PWD to submit its audited financial statements and audited project accounts to ADB not later than 6 months after the end of each fiscal year.

61. ADB's Board will be briefed annually on the progress through the review missions' back-to-office reports, and after the review of the PFRs.

## **11. Performance Monitoring and Evaluation**

62. With the assistance from the construction supervision consultants of Project 1, PWD will develop an investment program performance monitoring system and a project performance monitoring system to monitor and evaluate the impacts, outcomes, outputs, and activities in relation to the targets and milestones set for each project and the Investment Program.

63. At the beginning of each project, PWD and ADB will agree on a set of baseline values of economic, social, environmental, and poverty reduction impact indicators. With the assistance of the construction supervision engineer(s) of that project, PWD will conduct participatory surveys, and collect and analyze data at intervals agreed with ADB. Comments and findings of

the data analyses will be submitted as part of every other quarterly report of PWD to ADB. A complete analysis of related primary and secondary data on impacts and outcomes will be performed at completion, and 3 years after completion of each project and the Investment Program. The results, which will be reported to ADB within 3 months, will highlight the positive and negative impacts and outcomes of each project and the Investment Program.

## **12. Stakeholder Participation and Consultation**

64. PWD will ensure that the Investment Program is implemented with active participation of all stakeholders, using participatory practices. As part of the preparation of Project 1, consultations were held with stakeholders, including directly affected people, and local administrative departments. Issues related to the implementation of Project 1 and activities involved in the implementation were discussed. Stakeholder consultation and participation will continue throughout implementation. The initial poverty and social assessment report, and the short resettlement plans (RP) for Project 1 have been made available to the public by PWD and are posted on the ADB Web site. For subsequent projects, PWD will ensure that completed RPs, IPDPs, and resettlement monitoring reports are made available to affected people and are submitted to ADB for posting on its Web site. Additionally, the meetings of the road board would serve as a forum for stakeholders to discuss and seek resolutions to significant issues.

## **IV. BENEFITS, IMPACTS, ASSUMPTIONS, AND RISKS**

65. The main immediate benefits of the Investment Program include savings in vehicle operating costs, travel time, and maintenance costs stemming from the physical improvements. However, a large part of the road network lies in rolling terrain at high altitudes, which makes the cost of construction and maintenance generally higher than in plain areas. As such, the net benefits in the initial years are expected to be low. Moreover, much of the network has been designed to connect low-income hamlets, which generate few daily trips. While improvements to the roads in those areas would increase the people's level of accessibility to basic services and markets, the number of additional trips at the outset would be small. Consequently, travel time and vehicle operating cost savings in the initial years are expected to be small. However, as the Investment Program advances and more parts of the network—including links to the national highway system—are improved, the generation of passenger and freight trips is expected to increase substantially. Moreover, indirect benefits expected from the nonphysical parts of the Investment Program would increase and become substantial after about the third year. These benefits would include (i) increased local contractor capacity; (ii) systematic road investment planning and programming; (iii) improved financial management and governance; (iv) reduced accidents; and (v) walking time savings for bus passengers, which currently are not reasonably quantifiable.

### **A. Economic Benefits**

66. The economic analysis of the subnetwork of roads in Project 1 has been performed based on the expected benefits from the physical improvement and performance-based maintenance of 23 roads totaling 570 km (about 3% of the network). The benefits considered are (i) operating cost savings for normal passenger and freight traffic resulting from the improvements to riding quality; (ii) travel time savings for normal passengers and shippers resulting from the improvements in riding quality; (iii) travel time savings for passengers and freight resulting from fewer temporary road closures; (iv) savings in routine and periodic road

maintenance costs due to PBCs for maintenance; and (v) savings to generated<sup>19</sup> and induced traffic.

67. Due to the low trip generation rates and the opportunity cost of time, as well as the vehicle composition in the project area, the total (discounted) benefits<sup>20</sup> are expected to be \$48 million. The distributive analysis of Project 1 benefits has shown that (i) about 32% of the vehicle operating cost savings would accrue to car and light commercial vehicle operators that provide the bulk of the informal passenger services in the hill areas; (ii) about 32% to freight operators; and (iii) about 14% to formal bus operators. Of the travel time savings, nearly 62% would accrue to passengers<sup>21</sup> and the rest to shippers (freight). The poverty impact ratio of Project 1 is 0.30.

68. Despite the relatively small benefits and the high cost of physical works due to terrain conditions, the economic rate of return (EIRR) of Project 1 is 16.3%. The net present value (NPV) at a 12% discount rate is \$14.4 million equivalent. Sensitivity testing has demonstrated that Project 1 remains viable, with EIRR values above the normally accepted viability threshold of 12%, if costs increase by 20% or benefits decrease by 20%. In a worst case test, when costs increase by 20% and benefits decrease by 20%, the EIRR drops to 11.2%. A summary of the sensitivity tests carried out is in Table 6.

69. A probabilistic risk analysis also has been carried out to assess the combined effects of key input parameters, including costs, benefits, and traffic growth, on the EIRR and NPV. This risk analysis has provided a more realistic indication of the robustness of the overall EIRR than the conventional sensitivity tests reported in paragraph 68. It found only a 3% probability that the EIRR will be below 12%, and a 95% probability that the EIRR would be greater than 20%. Further details of these analyses are in Supplementary Appendix 6.

**Table 5: Summary of Economic Appraisal Sensitivity Tests**

<b>Sensitivity Test</b>	<b>EIRR (%)</b>	<b>NPV (Rs Million)</b>
Base case	16.3	647.9
Benefits reduced by 20%	13.5	211.7
Initial construction costs increased by 20%	13.7	297.4
Benefits reduced by 20% and initial construction costs increased by 20%	11.2	(138.7)
Traffic growth reduced by 20%	14.9	408.2
Traffic growth reduced by 50%	12.8	104.7

( ) = negative, EIRR = economic internal rate of return, NPV = net present value.

Source: Asian Development Bank estimates.

## **B. Sustainability of Physical Investments**

70. Despite the absence of state-road network components with sufficient potential to generate toll or other revenues, Uttaranchal is committed to funding the Investment Program

<sup>19</sup> The generated traffic was estimated by adopting a price elasticity of demand of one (i.e., a 10% decrease in transport costs would give a 10% increase in traffic).

<sup>20</sup> About 85% of the benefits result from vehicle operating cost savings and 15% from travel time savings.

<sup>21</sup> Assuming that capacity of the light commercial vehicles is shared equally by passengers and freight.

through additional budget allocations and external borrowings, which might come from increased revenue from the technology and power<sup>22</sup> sectors. Uttaranchal is also committed to providing adequate funds to maintain the roads after the improvements, which would require a 5%–10% increase in the current funding level<sup>23</sup> (when adjusted for inflation). Part of these funds are expected to come from vehicle taxes and licensing fees, which have been growing at more than 15% annually since 2003. Moreover, the additional funding needed likely would decline over time with the anticipated reduction of about 10%–20% in maintenance costs due to PBCs and increased use of multi-axel trucks.<sup>24</sup> That would permit the savings to be used for activities to increase mobility and accessibility for the rural people.

### **C. Sustainability of Nonphysical Investments**

71. The infrastructure management components would help PWD to maintain the momentum of the RDP and the infrastructure improvement components at a level needed to achieve the national and state development goals. The mix of interventions planned under the infrastructure management component in Project 1, which range from staff training to functional reorganizations to involvement of road users in planning, will transform the business process of PWD. The training program, in particular, is expected to increase staff productivity and asset performance by providing the skills necessary for efficient execution of the work programs using information technology and higher quality control systems. Training and awareness programs designed to increase civil works contractors' capacity would improve work quality, increasing the life of assets. Integrity and transparency of the processes will be enhanced by the use of information technology, which will be supported by staff training on MIMPS.

### **D. Environmental Impacts**

72. The Investment Program is categorized as A, because parts of two roads in Project 1 are within environmentally sensitive or protected areas. Field observations during the preparatory stage also indicated that most roads in their current condition damage the environment through surface runoff, earth slips, dust, erosion, noise, and air pollution. The proposed improvements under the Investment Program will reduce several of the sources of such pollutants, particularly runoff, earth slips, and dust. The initial environmental impact examination (IEE) and environmental impact assessment (EIA) have shown that some temporary and reversible negative environmental impacts are likely during construction. These include (i) temporary reduction in water quality in nearby streams; (ii) temporary increases in particulate emissions and noise levels near settlements; and (iii) minor impacts on flora and fauna, especially in sections in forests and protected areas. These impacts will be mitigated by fully implementing the protective measures and closely monitoring construction works, according to the environmental management plans (EMP).

73. The two roads (from Almora to Bageshwar, and Barechina to Sheraghat) in Project 1, parts of which pass through Binsar Wildlife Sanctuary, have been operational for more than 40 years. The wildlife sanctuary was declared a protected area, and ownership of the roads was transferred from PWD to the Forest Department in 1988. The roads, which are about 25 km from the main wildlife habitats, connect several communities to the national highway system and provide access to potential tourist destinations. The improvements proposed for these two roads will be limited to the pavement and drainage facilities within the existing rights-of-way.

<sup>22</sup> Power generation increased 14% between 2005 and 2006.

<sup>23</sup> About 2.3% of the total annual state capital disbursement.

<sup>24</sup> Resulting from tax incentives offered by the state government.

Therefore, the short-term, construction-related negative impacts will be few. The EMPs to address those short-term impacts have been prepared based on the EIA studies of the two roads. The Ministry of Environment and Forest of India will review and approve the EIA reports before the award of works contracts. An IEE report encompassing the rest of the roads in Project 1 also has been prepared. The summary EIA report for Project 1 and EARF were submitted to the Board and disclosed to public through ADB's Web site on 17 July 2006.

74. In each subsequent project of the Investment Program, PWD will try to contain the improvements within the existing rights-of-way, and conduct environmental assessments of each road to be improved in that project. An EIA, including an EMP, will be prepared for each road categorized as A according to ADB guidelines; and a summary EIA will be prepared and submitted to ADB for review. To avoid short-term impacts of the road improvement works on wildlife sanctuaries and forested areas, asphalt mixing plants, crusher plants, construction camps, and disposal of construction material will not be permitted within such areas. The contractors will be required to work closely with the Sanctuary Wardens and Forest Conservators of the relevant areas. PWD will be responsible for implementing the EMPs, while the contractors will be responsible for implementing the mitigation measures during construction.

75. For roads categorized other than A, PWD will prepare an IEE report and a corresponding EMP. The environmental assessments required for environmental categorization, review and approval procedures, as well as the responsibilities of ADB and PWD, are described in EARF. For village roads and light vehicle roads, an IEE checklist and a standard EMP will be employed.<sup>25</sup> To comply with national requirements, PWD will obtain the necessary permits from the relevant agencies before handing over the construction sites. All environmental reports and EMPs will be prepared according to the relevant national and state laws and regulations, as well as ADB's *Environment Policy* (2002) and EARF.

## **E. Social and Poverty Impacts**

76. The Planning Commission of Uttaranchal has estimated that more than 35% of the people in the state live in poverty. The population in the Investment Program catchment areas consists largely of rural people (75%), who are mostly farmers and unskilled laborers. A social assessment along the roads to be improved in Project 1 found that 4%–11% of the households are involved in businesses, while 19%–35% of the households are engaged in agriculture. Each day, women on average spend 4 hours on household activities and 5 hours on agricultural activities. An average person travels 3–6 km to access health facilities. In most of the districts, the surveys found that people walk 6–7 km to the nearest bus stop or local transport services. Local transport is infrequent—in most cases, SRTC services are provided only once per day. Hence, people resort to other forms of local transport services. In cases of emergency, people depend on private transport services for which they pay higher charges. The roads to be improved under the Investment Program are spread across all 13 districts, and will be accessible to about 3.5 million people living in adjacent villages. The improved roads are expected to increase service frequencies and enable more through services to a wider set of destinations. The summary poverty reduction and social strategy is in Appendix 9.

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<sup>25</sup> The IEE checklist and standard EMP served as the IEE for the rural road projects under the components of PMSGY funded by ADB.

## **F. Investment Program Beneficiaries**

77. In addition to the benefits to the rural people from increased access to markets and social services, the Investment Program is expected to create business and employment opportunities in the state. Approximately 80 contract packages, each valued between \$8 million and \$10 million, will be awarded for physical works over 7 years. The larger contracts would create opportunities for existing contractors to expand and invest in new construction equipment, and new contractors to enter the market. Expansion of the construction industry would create direct, permanent employment opportunities for skilled and unskilled labor. Project 1 will require about 0.8 million person-days of input from unskilled workers, and the Investment Program will require about 15.2 million person-days of input.

## **G. Impact on Indigenous Peoples**

78. The Investment Program will not hinder or negatively impact any segment of the population based on ethnic origin. It will generate equal benefits to all persons in the influence area of the Investment Program and the region. The improvement to the roads and connectivity will encourage better transport services, thereby improving access for all people, to social services, higher levels of schooling, health facilities, etc.

79. No scheduled tribe households will be adversely affected by Project 1. The Indigenous People Development Framework (IPDF) in Supplementary Appendix 7 was prepared in case indigenous people issues arise in the subsequent projects of the Investment Program. If such issues arise in any subsequent project, an IPDP will have to be prepared for each road, in accordance with the ADB's *Policy on Indigenous Peoples* (1998). This will have to be submitted to ADB for review and approval before civil works contracts are awarded.

## **H. Resettlement Impacts**

80. Four of the 23 roads that will be improved in Project 1 will have resettlement impacts. A detailed census has been conducted along those four roads, and short resettlement plans have been prepared for each section. No private land acquisition will be required. However, the structures of 17 encroacher and squatter households (totaling 87 affected persons) will be partially damaged, including boundary walls and parts of buildings. Six of those 17 structures are residential, commercial, or residential-cum-commercial. In accordance with ADB's *Policy On Involuntary Resettlement* (1995) and the resettlement framework, if future projects of the Investment Program entail land acquisition and resettlement impacts, a resettlement plan for each impacting road will have to be prepared and submitted to ADB for approval before contracts are awarded. PWD has disclosed the short resettlement plans for the four impacting roads in Project 1 to the affected persons. A summary of the short resettlement plans is in Appendix 10.

## **I. Risks**

81. The main risk to success of the Investment Program is likely to stem from project preparation delays, implementation delays, and the quality of physical outputs. Project preparation delays might lead to delays in the submission of PFRs, and subsequent delays in the Investment Program implementation. To minimize this risk, ADB has reviewed all steps in project preparation in detail with PWD, and has agreed on a feasible schedule for PFR submissions. Another potential cause of procurement delays will be mitigated in the Investment



Program by appropriately grouping and spacing the calls for bids. The projects also have been sized and sequenced to allow PWD's capacity to be enhanced incrementally.

82. Evidence from recent road development programs in India, particularly NHDP and PMGSY, suggest that implementation delays in many cases are related to (i) land acquisition; (ii) cumbersome environmental, forest, and railway clearance procedures; (iii) procurement document preparation; (iv) inadequate procurement planning; and (v) complexities of bid evaluation. Poor quality of physical outputs has been found to be a function of executing agencies' lack of experience with contract administration and contracting. To minimize these risks in the Investment Program, PWD's consultants and later its trained staff will prepare advance plans for each project, identifying the critical paths and necessary advance contracting. Adequate resources are provided for consulting services for supervision of works, and resources are allocated from the infrastructure management component in Project 1 for training PWD's staff in contract administration. Additionally, the PBCs are expected to expand the contractor pool due to the increased size of the contract packages and the potential for extended work.

## **V. ASSURANCES**

83. ADB will seek the following broad assurances, in addition to the assurances consistent with its policies applicable to all projects and all borrowers, which will be incorporated in the legal documents:

### **A. General**

84. Uttaranchal will

- (i) provide its share of funding for the Investment Program in accordance with the Financing Plan and the implementation schedule, as well as provide for any cost overruns in excess of the contingencies; and
- (ii) provide the funding needed for maintaining the network roads in a good condition during and after the completion of the Investment Program.

### **B. Environment**

85. Uttaranchal through PWD will

- (i) implement EARF in every project in the Investment Program in accordance with ADB's *Environment Policy* (2002), and applicable laws and regulations of India and Uttaranchal; and
- (ii) provide training for engineers to be assigned to projects for environmental management, and to ensure that PWD's responsibilities as described in EARF are fully implemented in consultation with the contractor and construction supervision consultants.

### **C. Execution of Civil Works Contracts**

86. Uttaranchal through PWD will,

- (i) subject to compliance with the requirements of the RF, IPDF, and EARF (a) make available land and rights to land, free from any encumbrances; and (b) clear the utilities, trees, and any other obstruction from such land, on a timely basis, i.e., strictly in accordance with the schedule as agreed under the related works contract, as required for activities relating to each road or section of a road included in the works contract; and
- (ii) subsequent to the award of a contract package to a contractor in any project in the Investment Program, ensure that roads or sections of roads (sites) in that package are not handed over to the contractor unless all applicable provisions of the RF, IPDF, and EARF are satisfied.

### **D. Social Impacts and Other Issues**

87. Uttaranchal through PWD will

- (i) implement all projects in the Investment Program in accordance with the RF and ADB's *Involuntary Resettlement Policy* (1995), and the *Indigenous Peoples Policy* (1998), and applicable national and state laws and regulations;
- (ii) if there are any design changes in Project 1 roads, ensure that the short RPs are updated on the basis of the final alignment and submitted to ADB for review and approval prior to awarding of civil works contracts.

### **E. HIV/AIDS and Human Trafficking**

88. PWD will ensure that the works contractors under the project(s) incorporate provisions to the effect that the contractor will (i) carry out HIV/AIDS awareness and prevention programs for labor; (ii) not employ or use children as labor; (iii) disseminate information at worksites on risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction; and (iv) follow and implement all statutory provisions on labor (including equal pay for equal work), health, safety, welfare, sanitation, and working conditions. The civil works contract will also provide for termination of the contract by PWD in case of breach of any of the stated provisions by the contractors.

### **F. Road Safety**

89. Uttaranchal will ensure strict adherence of contractors to national and state road safety standards in terms of signage, road markings, roadside structures, and maintenance. As part of the midterm review of the Investment Program, Uttaranchal and ADB will conduct a road safety audit and, if necessary, implement any measures needed to revise the institutional mechanisms, financing modalities, and detailed implementing arrangements to improve safety.

## **G. Selection and Approval Process for Project Roads**

90. PWD will ensure that selection of roads to be improved in each project of the Investment Program is based on the procedures and criteria outlined in Appendix 4, and will be in accordance with the RDP. The request for approval of each project will follow the stages described in Appendix 4 and the FFA.

## **H. Implementation Arrangements**

91. Uttaranchal through PWD will

- (i) ensure that the steering committee set up to monitor and guide the Investment Program will remain for the entire duration of the Facility, and will oversee the implementation of all projects to ensure timely and successful completion;
- (ii) ensure that the PMU set up for Project 1 shall remain adequately staffed and functional during the implementation of subsequent projects in the Investment Program and provide, as necessary, counterpart staff;
- (iii) within 2 months of effectiveness of the first loan, engage program support consultants financed by the first loan, to assist the PMU to coordinate and facilitate processing and implementation of the Investment Program activities, and liaise with the consultants in different projects;
- (iv) at least 1 month prior to the award of the first works contract under each project or no more than 1 month from the date of effectiveness of the loan for each project, whichever comes first, establish an adequate number of PIUs to administer the works contracts in each project;
- (v) ensure that the composition of the Steering Committee and the PMU staff agreed with ADB remains fixed for the entire duration of the Investment Program, and the composition of the staff of the PIU(s) set up for a particular project will remain fixed for the entire duration of that project;
- (vi) ensure that necessary authority is delegated to the appropriate PMU staff for timely processing of PFRs and implementation of individual projects to coordinate with ADB for strict adherence to implementation schedules including, but not limited to, recruitment of consultants and safeguard compliances, as agreed under the Facility as well as for individual projects; and
- (vii) provide adequate funding for independent monitoring of safeguard activities in the projects under the various frameworks.

## **I. Performance Monitoring and Reporting**

92. Uttaranchal will

- (i) ensure that PWD, in consultation with ADB, develops within 3 months of the approval of the Facility an investment program performance monitoring system. Similarly within 3 months of the effective date of each Loan Agreement, PWD will develop a project performance monitoring system. The investment program performance monitoring system and project performance monitoring system will monitor and evaluate the impacts, outcomes, outputs and activities in relation to the targets and milestones set for the overall Investment Program and the project respectively;

- (ii) ensure that PWD prepares reports in the format provided in the PAM of each project and the facility administration memorandum and submits to ADB at the agreed frequency for each type of report.

93. India will submit a project completion report to ADB for each project within 3 months of physical completion for the project, and a Facility completion report within 3 months of physical completion of the Investment Program.

## **J. Reviews**

94. ADB, India, and Uttaranchal will meet periodically to discuss the progress of the project(s) and any changes to implementation arrangements or remedial measures required to be undertaken ensure the impacts and outcomes of the project(s) and Investment Program.

95. Midterm reviews of Project 1 and the Investment Program will be undertaken by ADB, India, and Uttaranchal in January 2010 and June 2012 respectively. The reviews will focus on issues related to implementation arrangements, and the reviewers would agree on changes, if needed, to achieve the objectives of Project 1 or the Investment Program. Timing for the midterm review of each subsequent project will be agreed upon at the time of approval of that project.

## **K. Audits**

96. PWD will ensure that contracts financed from the Facility will include provisions specifying the right of ADB to audit and examine the records and accounts of PWD and all contractors, suppliers, consultants, and other service providers as they relate to the Project(s) under the Facility.

97. Uttaranchal through PWD will

- (i) ensure that proper accounts and records are maintained and audited in a timely manner to adequately identify the use of loan proceeds in such manner and detail as may be specified under each Loan Agreement and Project Agreement(s);
- (ii) in consultation with ADB, engage an independent external audit firm to conduct annual audits of consolidated accounts of each Project prior to the audit performed by the Comptroller and Auditor General of India; and
- (iii) submit the annual financial statements and audited accounts for each Project to ADB not later than 6 months after the end of each fiscal year of Uttaranchal.

## **L. Infrastructure Management**

98. Uttaranchal through PWD will

- (i) with the assistance of the infrastructure management consultants, establish the Road Board chaired by Secretary PWD within 12 months of the first loan under the Facility becoming effective;
- (ii) ensure that the Road Board Chair convenes bi-annual meetings and that the first meeting is convened within 18 months of the first loan from the Facility becoming effective;

- (iii) within 12 months of the first loan under the Facility becoming effective, establish a separate planning unit that will be responsible for reviewing and updating the RDP, setting performance standards, and monitoring infrastructure performance; and
- (iv) ensure that PWD staff are required to follow the relevant training provided under the infrastructure management component of Project 1; and
- (v) enhance the integrity of the procurement activities by introducing better internal controls by facilitating the operationalization of MIPMS by 1 June 2007.

## **VI. RECOMMENDATION**

99. I am satisfied that the proposed multitranche financing facility would comply with the Articles of Agreement of ADB and recommend that the Board approve the provision of loans from the multitranche financing facility in an aggregate principal amount not exceeding \$550,000,000 equivalent to India for the Uttaranchal State-Road Investment Program from ADB's ordinary capital resources, with interest to be determined in accordance with ADB's LIBOR-based lending facility, and such other terms and conditions as are substantially in accordance with those set forth in the Framework Financing Agreement presented to the Board.

Haruhiko Kuroda  
President

27 November 2006

## DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<b>Impact</b> Increased economic growth and reduced poverty in Uttaranchal	Households below the poverty line in Investment Program catchment areas decrease from 36% in 2006 to 20% by 2017	<ul style="list-style-type: none"> <li>National and state public statistics</li> <li>Reports of Center for Monitoring Indian Economy Pvt. Ltd.</li> </ul>	<b>Assumption</b> <ul style="list-style-type: none"> <li>State transport service regulations and taxes are relaxed further to encourage new entrants into the operator market</li> </ul> <b>Risk</b> <ul style="list-style-type: none"> <li>State tourism and horticulture development programs are not advanced</li> </ul>
<b>Outcomes</b> 1. Increased efficiency of inter- and intrastate transport services  2. Enhanced sustainability of road network in good condition	1.1 Increase in the number of goods vehicle permits issued from 600 to 750 per month by 2012 1.2 Increase in SRTC bus utilization rate from 200 to 250 km per bus per day by 2012 1.3 Increase in stage carriage permits issued from 15 to 20 per month by 2012  2.1 Routine maintenance cost reduced from \$1,400 to \$1,000 per km through area-wide PBCs by 2012 2.2 Average service life of periodic maintenance works increased from 3 to 5 years by 2012	<ul style="list-style-type: none"> <li>Post-implementation surveys</li> <li>Facility and project performance management systems</li> </ul>	<b>Assumptions</b> <ul style="list-style-type: none"> <li>State funds for road sector are sustained at the level required to maintain the network roads</li> <li>PWD staff are provided adequate time to attend training programs</li> </ul> <b>Risks</b> <ul style="list-style-type: none"> <li>Rise in fuel prices and vehicle sales taxes</li> <li>Turnover of trained staff</li> <li>Environmental clearances and resettlement activities are delayed</li> </ul>

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p>3. Increased operational transparency and governance of PWD</p> <p>4. National road development programs synergized</p>	<p>3.1 Road Board functional by 1 January 2008 and holds formal meetings to discuss user concerns</p> <p>3.2 External audits of financial accounts including procurement indicate full compliance with agreed procedures</p> <p>4.1 Share of roads in good condition connected to NHDP and PMGSY roads increased from 10% to 30% by 2010</p>		
<p><b>Outputs</b></p> <p>1. Paved, repaired, or rehabilitated state roads</p> <p>2. Staff with improved skills and revised operating procedures</p>	<p>1.1 At least 10,800 km of state roads are in good condition (IRI &lt; 4.5) by 2015</p> <p>2.1 At least 200 PWD staff trained in one or more areas of planning, quality control, contract administration, safeguard compliance, and MIPMS usage by 2010</p> <p>2.2 State-wide programs and budgets after 2008 are prepared by PWD's central planning unit</p> <p>2.3 MIPMS used for financial management and monitoring by 2008</p> <p>2.4 PWD initiates procurement of all works under PBCs by 2012</p>	<ul style="list-style-type: none"> <li>• Engineers' progress reports and audit reports submitted to ADB</li> <li>• Review missions and project completion reports</li> </ul>	<p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>• First loan is effective by 1 March 2007</li> <li>• Advance procurement for Project 1 is completed by 1 March 2007</li> </ul> <p><b>Risk</b></p> <ul style="list-style-type: none"> <li>• Shortage of qualified contractors</li> </ul>

Activities with Milestones	Inputs
<ul style="list-style-type: none"> <li>1.1 All improvement works under Project I are completed by 1 September 2008</li> <li>1.2 Preparatory activities of the last project to be financed under the Investment Program are completed and PFR submitted to ADB by 1 May 2012</li> <li>1.3 All road works financed under the Investment Program are completed by 31 December 2017</li> <li>1.4 Each road improved roads under the Investment Program is maintained according to predetermined performance standards for at least 3 years after the improvements</li> <li>2.1 Implementation of MIMPS by 1 June 2007</li> <li>2.2 Establishment of Road Board by 1 December 2007</li> <li>2.4 Planning Unit operational by 1 December 2007</li> <li>2.3 Training of PWD staff completed by 1 June 2008</li> <li>2.5 Two new operational zones mobilized by 1 June 2008</li> </ul>	<ul style="list-style-type: none"> <li>• ADB \$550 million</li> <li>• India \$280 million</li> </ul>

ADB = Asian Development Bank; IRI = international roughness index; km = kilometers; NHDP = National Highway Development Program; MIPMS = management information and project management system; PBC = performance-based contract; PFR = periodic financing request; PMGSY = Pradhan Mantri Gram Sadak Yojana; PWD = Public Works Department; RDP = road development plan; SRTC = State Road Transportation Corporation.



## ROAD SUBSECTOR ANALYSIS

### A. Performance and Constraints

#### 1. Introduction

1. The roads subsector in the state of Uttaranchal comprises road infrastructure, which is administered by the Public Works Department (PWD); and transport services, which are overseen by the Transport Department. Both departments have a state cabinet minister. PWD is responsible for planning, financing, constructing, and maintaining roads, bridges, and government buildings. Uttaranchal's Transport Department is the remit of Uttar Pradesh's Transport Department, which was constituted in 1945 under the provisions of Section 133 A of the Motor Vehicles' Act 1939, and is headed by a commissioner. Transport Department is responsible for issuing licenses for vehicles and operators, operating permits for private freight and passenger service operators, and managing the State Road Transport Corporation (SRTC).

#### 2. Transport Services

2. Approximately 90% of passenger and freight traffic in the state moves by road. Further, more than 80% of the freight and passenger traffic and heavy vehicles use national highways, which account for less than 7% of the road network.<sup>1</sup> Rail services offer freight and passenger connections to the neighboring state of Uttar Pradesh and to New Delhi through four rail heads in Uttaranchal's southern low-lying plain region.<sup>2</sup> The hilly and mountainous terrain that covers more than 90% of state's land area would preclude the development of railway infrastructure catering to intrastate services. Although an air service operates once a day between the state capital Dehradun and New Delhi, its capacity is limited and its reliability is poor.

3. SRTC operates inter- and intrastate passenger services on 35 nationalized routes (mostly national highways, state highways, and district roads), and on many non-nationalized (routes of other classes of roads). However, private operators provide the bulk of the freight and passenger services under permits issued by state transport authorities. These private operators are responsive to customer demand, and are not constrained by fixed schedules. The private passenger and freight transport operators have formed independent unions and associations to safeguard their interests and lobby the state government for concessions.

4. SRTC has a fleet of 968 buses operating out of 15 depots across the state.<sup>3</sup> In 2005, SRTC's vehicle utilization averaged 288 kilometers (km) per day at an average occupancy of 63%. Gross income from operations during the same period was approximately \$28.5 million, and monthly income increased by 27% during the year. SRTC has embarked on a program to replace the aging bus fleet it inherited from Uttar Pradesh, with the replacement of the full fleet planned by the end of 2007. Although SRTC's bus operations are well used and show healthy growth, they focus on connecting the main population centers throughout the state, as well as serving Delhi and other important cities in neighboring Uttar Pradesh.

5. Privately operated passenger transport predominates in the rural hill areas. These services often serve the smaller villages off the main routes between towns, providing a more

<sup>1</sup> Source: Strategic Options Study. Prepared for the PWD by CES Ltd., New Delhi, May 2005.

<sup>2</sup> Rail heads are located at the state capital, Dehradun, as well as at Kotdwar, Kathgodam, and Ramnagar.

<sup>3</sup> The Centre for Monitoring Indian Economy. 2006. *Monthly Review of Uttaranchal Economy*. Mumbai, India. (February).

convenient service than the SRTC. In the hill areas, the private passenger services are provided by jeeps that are frequently grossly overloaded with passengers. Operators of these jeeps set their own fares, within maximum and minimum limits prescribed by SRTC. The state does not exercise control over freight tariffs, which are purely market-driven.

### 3. Vehicle Fleet

6. Uttaranchal's vehicle fleet has been growing steadily over the past 5 years. Since 2001, vehicle registration data shows consistent annual growth rates of 12%–14%, with the number of registered vehicles reaching 565,700 in March 2005. Of these vehicles, some 77% are two-wheelers and 10% are cars. Commercial vehicles (buses, trucks, vans, etc.) account for only 13% of registered vehicles. Although the high growth rates suggest a buoyant vehicle fleet, these statistics tend to represent conditions in the plains and in the main urban centers where population densities are higher. They do not reflect the general conditions in the hill areas, where incomes and population densities are lower. Overall, average vehicle ownership in the state is about 30% lower than the national average.

### 4. Road Network

7. The road network administered by PWD comprises of national highways (NH),<sup>4</sup> state highways (SH), major district roads (MDR), other district roads (ODR), village roads (VR), light vehicle roads (LVR), and footpaths. Approximately 16,800 km of that network are motorable roads. The Border Roads Organization manages about 1,200 km of NHs, SHs, MDRs, and ODRs; while local authorities and other state departments manage approximately 8,100 km of lower category roads.

8. Only 103 km of roads in the network are two-lane with a carriageway width of 7.0 meters or more.<sup>5</sup> The rest are single-lane roads with carriageway widths of 3.75 meters or less.<sup>6</sup> In total, 62% of roads are bitumen or concrete surfaced. Table A2.1 shows the proportions of surfaced and un-surfaced roads for the various road categories.

**Table A2.1: Surface Types of PWD Network in Financial Year 2004**

Road Category	Network Roads (%)	
	Surfaced	Unsurfaced
State Highways	100	0
Major District Roads	99	1
Other District Road	66	34
Village Roads	69	31
Light Vehicle Roads	10	90
Total PWD Road Network	62	38

PWD = Public Works Department.

Source: Road Development Plan (November 2005).

<sup>4</sup> NHs fall under the National Highway Authority of India (NHAI), which has delegated maintenance responsibility to PWD.

<sup>5</sup> This excludes the 455 km of NHs with more than two lanes.

<sup>6</sup> PWD. 2005. *Road Network Development Master Plan*. Dehradun. (November).

9. Table A2.2 shows that 28% of the higher class paved roads (SHs<sup>7</sup> and MDRs<sup>8</sup>) are in poor condition. More than 80% of the collector and distributor roads (ODRs and VRs<sup>9</sup>), which account for about 65% of PWD's network, needs to be repaired or rehabilitated. Consequently, poor network connectivity and restrictions on formal transport services to the main arterials increase the cost of transport for people and enterprises. On the roads that are in good and fair condition, geometric deficiencies, lack of signs and delineation, and temporary closures due to earth slips and rock falls constrain capacity. Continuation of this phenomenon has deprived a large part of the population of access to basic services and opportunities to maintain or enhance incomes and quality of life during winter and rainy seasons.

**Table A2.2: Surface Condition of PWD Roads by Category in Financial Year 2004**

Road Category	Condition Rating (% of length)			Total
	Good	Fair	Poor	
State Highways	32	46	22	100
Major District Roads	19	75	6	100
Other District Road	12	48	40	100
Village Roads	13	45	42	100
Light Vehicle Roads	1	23	76	100
Total PWD Road Network	12	45	43	100

PWD = Public Works Department.

Source: PWD's Road Condition Study 2004–2005.

10. Traffic on SHs, MDRs, and ODRs in the hilly parts of the state reportedly average around 500, 300, and 150 vehicles per day, respectively. The Strategic Options Study conducted by the PWD found that only three roads, totaling 150 km, would warrant widening based on traffic volume. Traffic generation rates in the scarcely populated hilly areas, which are served by the state roads, have remained low mostly due to the poor surface condition, constraining geometry, and seasonality of the roads. Most of the traffic on the state-road network is small multipurpose vehicles (jeeps) and non-motorized vehicles.

11. A summary of the network and its geographic dispersion is in Table A2.3. The roads are dispersed throughout all 13 districts of the state. While the road density per capita is highest in the hilly region, the density per area drops substantially. The majority of those roads are the least maintained and repaired ODRs and VRs, which is the origin of poor connectivity.

12. Local contractors carry out periodic maintenance using mostly labor-intensive, outdated, and inefficient construction methods. Small local contractors also undertake the capital works. The practice of awarding many small contracts valued at around \$1.0 million each provides no incentive for those small contractors to invest in modern construction plant, raise production rates, and improve quality. In FY2005, 47 contracts were awarded, with the largest being the equivalent of about \$1.2 million for the rehabilitation of about 25 km. Although PWD has prequalified 65 grade A private contractors to undertake works valued at equivalent of about

<sup>7</sup> The total length of SHs is 696 km. PWD is responsible 437 km, while the Border Roads Organization is responsible for the rest.

<sup>8</sup> Totaling about 1,370 km.

<sup>9</sup> Totaling about 12,200 km.

\$100,000, only about two in-state contractors reportedly are likely to qualify for works valued at \$10 million.

13. Local contractors carry out the majority of routine road maintenance operations, albeit in small contracts. PWD still has its own labor workforce of about 5,000, which it tends to use in the hilly remote areas. However, a moratorium has been placed on hiring new maintenance labor to reduce the workforce through attrition, which would allow even the routine maintenance to be outsourced to the private sector. Under Pradhan Mantri Gram Sadak Yojana (PMGSY), contractors carry out road maintenance according to agreed performance standards for 5 years after completion of construction. Use of performance-based contracts (PBC) has been increasing in India. PWD intends to adopt this method of contracting for area-wide maintenance. This is a positive development that is expected to increase cost efficiency and effectiveness of road maintenance operations.

## **B. Planning and Financing**

14. Investment in roads is based on annual construction and maintenance budgets prepared by the divisional offices of the PWD. The annual budgets include the estimated cost of capital works (new roads and periodic maintenance) and routine maintenance costs. However, works are not prioritized and programmed according to state or local goals. These budgets are submitted to PWD headquarters for review. Based on those submissions, a budget request is made to the state, which then appropriates the full amount or part of the funds requested to the PWD. Those funds then are allocated to the various divisions in proportion to their requests and other considerations.

15. State sources include (i) direct revenue earned through road tax, (ii) license fees, (iii) freight operator's licenses, and (iv) passenger transport operator's licenses. The transport tax revenue goes into the state government's reserves, and is not dedicated for road development. This revenue amounted to \$21.9 million in FY2004, which was around 20% of the total expenditure budget for that year. The remainder was from direct budget allocations. In FY2006, the state's contribution was approximately 83%, with the national sources making up the rest. Table A2.4<sup>10</sup> shows an increasing trend in financing for road infrastructure since FY2002, and a larger portion being allocated to maintenance. Revenues from vehicle taxes and licenses have been increasing at an average annual rate of around 15%. The maintenance budget estimate for FY2006 is more than twice that of FY2005, demonstrating an increased focus on maintenance operations.

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<sup>10</sup> These budget allocations are for the PWB road network, and they exclude central Government funding for National Highways and PMGSY.

**Table A2.3: Summary of Demographics and Road Network**

District	Population		Area		Population Density	SH	MDR	State Road Network			Total	Total % of State	Road Density	
	Total	% of State	km <sup>2</sup>	% of State	persons/ km <sup>2</sup>			ODR	VR	LVR			per 100 km <sup>2</sup>	per 100,000 population
Plains Region														
Haridwar	1,447,187	17.0	2,360	4.4	613		89	145	598		832	5.0	35	57
Udam Singh Nagar	1,235,614	14.6	2,908	5.4	425	7	5	139	1,083		1,234	7.4	42	100
Dehradun	1,282,143	15.1	3,088	5.8	415	35	390	594	674	471	2,164	12.9	70	169
Subtotal	3,964,944	46.7	8,356	15.6	475	42	484	878	2,354	471	4,230	25.3	51	107
Hill Region														
Tehri Garhwal	604,747	7.1	4,080	7.6	148	49	222	889	286	492	1,938	11.6	48	321
Rudraprayag	227,439	2.7	1,891	3.5	120			376	168	105	650	3.9	34	286
Pauri Garhwal	697,078	8.2	5,400	10.1	129	56	136	1,111	819	509	2,631	15.7	49	377
Almora	630,567	7.4	3,083	5.8	205	166	204	1,089	207	126	1,793	10.7	58	284
Nainital	762,909	9.0	3,860	7.2	198	26	215	404	809	243	1,696	10.1	44	222
Bageshwar	249,462	2.9	2,302	4.3	108		150	236		50	436	2.6	19	175
Champawat	224,542	2.6	1,781	3.3	126			120	248	119	486	2.9	27	216
Subtotal	3,396,744	40.0	22,397	41.9	152	296	926	4,226	2,537	1,644	9,628	57.6	43	283
Upper Region														
Uttarakshi	295,013	3.5	8,016	15.0	37		75	393	316	158	941	5.6	12	319
Chamoli	370,359	4.4	7,614	14.2	49			637	97	202	936	5.6	12	253
Pithoragarh	462,289	5.4	7,100	13.3	65			321	512	154	987	5.9	14	213
Subtotal	1,127,661	13.3	22,730	42.5	50	0	75	1,351	925	513	2,864	17.1	13	254
State Total	8,489,349	100.0	53,483	100.0	159	338	1,485	6,455	5,816	2,628	16,722	100.0	31	197

km = kilometers; LVR = light vehicle roads; MDR = major district roads; ODR = other district roads; VR = village roads

Source: Road Development Masterplan (November 2005).

**Table A2.4: Funding for Roads**  
(\$ million)

Item	Fiscal Year				
	2002	2003	2004	2005	2006
Capital Investment	82.0	57.1	74.1	110.9	126.1
Maintenance	9.1	8.3	10.1	14.7	32.5
Establishment, Others	19.7	21.5	22.9	24.7	34.3
<b>Total</b>	<b>110.8</b>	<b>86.9</b>	<b>107.1</b>	<b>150.3</b>	<b>192.9</b>

Source: Public Works Department.

### C. Road Development Plan

16. Inefficient transport and communications infrastructure increase transaction costs and constrain the national economy from realizing its full potential. As part of the strategy for improving overall transport sector performance, India has initiated a balanced program of road subsector development under the 10th Five Year Plan (2002–2007), which will continue under the 11th Five Year Plan (2008–2012). The program aims to increase the capacity of the road network, as well as improve (i) maintenance of rural roads, (ii) road safety, (iii) riding quality of national highways, (iv) rural connectivity with all-weather roads, and (v) access to intermodal terminals. The two main components of that program are the National Highway Development Program (NHDP),<sup>11</sup> and PMGSY Program.<sup>12</sup>

17. The state government's vision, as outlined by the chief minister in 2005, is to reach a level of economic development that would generate employment and income opportunities for its people to achieve a good quality of life and social progress, while preserving the environment and nature. Towards this end, the state government has announced an infrastructure plan to (i) double per capita income, (ii) halve the population living in poverty, (iii) arrest the migration of workers, and (iv) provide universal access to electricity and safe drinking water. The plan envisages investments in key components of the state's infrastructure system to stimulate agriculture, industry, and service industries; and create employment opportunities.

18. The vision for road infrastructure, as described by the state, is "rapid and social upliftment of the population while simultaneously ensuring balanced regional development and spreading the accruing benefits evenly over all sections of the society". To realize this vision, Uttaranchal formulated a draft road policy in 2005 with the objective of creating a road network that would provide (i) high-speed connectivity with the rest of the country, (ii) adequate and efficient connectivity to all the demand drivers (tourism, industries, agriculture, and urban centers), (iii) connectivity to all villages and habitations through roads and bridges, and (v) year-round service. The relevant state ministries are reviewing the draft road policy.

19. The draft road policy will be implemented through the road development plan (RDP) prepared by PWD in 2005. The RDP outlines a program of physical improvements,

<sup>11</sup> Announced in 1998, NHDP was intended to upgrade 13,146 km to multi-lane standards between 2001 and 2007. It was expanded in February 2005 to seven phases. Phases III through VII are intended to upgrade an additional 45,000 km, and add a 1,000 km of new expressways between 2005 and 2012.

<sup>12</sup> Initiated in 2000 with the aim of providing all-weather access from main thoroughfares to rural settlements with more than 250 people by constructing and improving the previously used foot paths and village roads.

maintenance strategies, and skills development measures designed to (i) surface all unsurfaced network roads, (ii) upgrade all safety features on roads to meet Indian Roads Congress standards, (iii) provide road links to all social facilities that are more than 1.5 km from any habitation, (iv) provide road links to all tourist centers and 60%–70% of pilgrimage centers, (v) maintain 85% of the network roads in good condition after 2015, (vi) outsource all maintenance works on a competitive basis under PBCs, and (vii) provide training in key areas to PWD staff.

20. Physical improvements have been programmed in the RDP using a multi-criteria ranking system, which takes into account the remaining life and economic importance (population density and connectivity) of the road section.<sup>13</sup> The program is divided into three stages, as shown in Table A2.5. Staging has been determined largely on the basis of the rankings. Accordingly, 344 road sections have been assigned to Stage I. These sections must be improved within the next 3 years, because they are (i) scheduled for improvement, or (ii) needed to link the federally funded rural road and NHDP. The roads included in Stage II have less urgency. Road sections assigned to Stage III are both less urgent and less than 5 km long. Stage III would cover all secondary and tertiary roads, as well as the balance of roads in the network that recently have had (or will soon have) periodic maintenance treatment, and would require more extensive interventions in the later years of the program.

**Table A2.5: Stages of Road Development Plan**

Stage	Period	Length (km)	Road Improvements	
			Roads (#)	Cost (\$ million) <sup>a</sup>
I	2007–2010	5,650	344	352
II	2011–2014	5,150	334	262
III	2015–2017	6,180	to be determined	346
<b>Total</b>		<b>16,980</b>		<b>960</b>

km = kilometers

<sup>a</sup> In 2005 prices. Approximately \$1.2 billion when adjusted for inflation.

Source: Road Development Plan (November 2005).

21. For ease of implementation and project management, each stage is divided into several projects, also ranked based on the priority of the road sections. For Stage 1, the 344 roads (or sections of roads) have been grouped into four projects (Projects 1 through 4), as shown in Table A2.6. Pre-construction work on roads in Project 1 has been completed, and pre-construction work for Project 2 is expected to start in mid-2006.

**Table A2.6: Projects in Stage I of Road Development Plan**

Activity	Roads (#)	Length (km)	Cost (\$ million)	Implementation Period
Project 1	23	573	58	2007–2008
Project 2	49	1,270	75	2007–2009
Project 3	114	1,847	110	2008–2009
Project 4	158	1,960	110	2009–2010
<b>Total</b>	<b>344</b>	<b>5,650</b>	<b>352</b>	<b>2007–2010</b>

km = kilometers

<sup>a</sup> In 2005 prices.

Source: Road Development Plan (November 2005).

<sup>13</sup> As estimated during PWD's road condition survey (2004–2005). The full list of criteria employed for ranking is in Appendix 4.

22. As shown in Table A2.5, the program of physical improvements and maintenance requires approximately \$960 million,<sup>14</sup> which would amount to about \$120 million per year in real terms over the next 10 years. Based on the state's budget allocation to PWD in FY2006 of about \$150 million, as shown in Table A2.4, the program would require approximately an 80% increase in annual funding. The proposed multitranchise financing facility (MFF) from ADB is intended to help finance part of the investments under the RDP. An MFF is best suited to support planned sequential investments, which progressively would elevate percentage of the state roads in good condition to 90%. The Investment Plan under the MFF and the investment road map are in Table A2.7. These investments will be in parallel, and in addition to, the PWD's other road development and maintenance programs.

23. To enhance the sustainability of the impact of this large investment, PWD intends to cut costs and improve maintenance by procuring civil and maintenance works under PBCs. Indirect benefits of PBCs include increased opportunities for private sector involvement, and fewer opportunities for misappropriation of funds. The lower costs would be derived from economies of scale and reduced prices in return for long-term work assurances for contractors. PBCs, which are generally larger and longer than conventional construction contracts, help contractors distribute overhead, and generate incentives to enhance construction quality to lower subsequent maintenance costs. This would encourage private road builders in the state to consolidate or expand, and be more professional and innovative. PWD, on the other hand, can reduce the number of contracts and variation orders, thereby reducing opportunities for misrepresentation of work and ex-gratia payments for expeditious processing. Under PBCs, the contractors will be delegated the responsibility of managing and maintaining specific segments of roads, or part of a network, at predefined minimum levels of serviceability. Payments will be periodic lump sums, conditional on maintaining the road at the established serviceability or performance standards. PWD also can use the assurances to leverage a lower price and focus more on monitoring, instead of devoting time to procurement.

24. Combined type PBCs would be awarded initially in projects financed from the MFF, which will be mainstreamed into PWD's standard procurement policy over the duration of the MFF. To allow time for preparation, the first set of PBCs is scheduled to be awarded in Project 2, as shown in Table A2.7. Subsequently, area-wide maintenance works will be awarded under PBCs.

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<sup>14</sup> Approximately \$1.2 billion when adjusted for inflation.



**Table A2.7: Road Map and Investment Program**

Item	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
<b>Road Development Plan</b>													
Capital Investment – New Roads (\$ million)	125	60	60	60	60	60	60	60	60	60	60	60	600
Capital Investment – Improvement of Existing Roads (millions)					50	50	50	50	50	50	50	40	340
Maintenance (\$ million)	30	30	30	30	30	35	35	35	40	40	45	45	350
Total Funding Requirements (\$ million)	155	90	90	90	140	145	145	145	150	150	145	105	1,290
<b>Investment Program</b>													
<b>A. Infrastructure Improvement Component</b>													
		<b>P1</b>	<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>					
Length of State Highways Improved (km)			140	110	90		10	50					400
Length of Major District Roads Improved (km)			150	450		40	350	100					1,090
Length of Other District Roads Improved (km)			250	600	1,000	800	1,350	700	250				4,950
Length of Village Roads Improved (km)			60	90	650	750	100	700	800				3,150
Length of Light Vehicle Roads Improved (km)				10	100	350	0	200	550				1,210
Total Length of Improved Roads			600	1,260	1,840	1,940	1,810	1,750	1,600				10,800
<b>B. Financing Plan</b>													
Total Funding Requirement (\$million)		74	145	160	145	135	135	110					830
State Contribution (\$ million)		24	45	60	45	45	45	40					280
ADB Funding (\$ million)		50	100	100	100	90	90	70					550
PFR Due Date		1 Sep 2006	1 Jun 2007	1 Jun 2008	1 May 2009	1 May 2010	1 May 2011	1 May 2012					
<b>C. Performance Indicators</b>													
Works procured under civil works and 3-year performance-based contracts		√	√	√	√	√	√	√					
PWD adopts PBCs as default maintenance contracting procedure						√							
25% of PWD's maintenance contracts awarded as PBCs								√					
Length of PWD Road Network in Good Condition at year-end (km)	0	600	1,860	3,700	5,640	7,450	9,200	10,800					
Length of PWD Road Network in Good Condition at year-end (% of Total)	0	4	11	22	34	44	55	64					

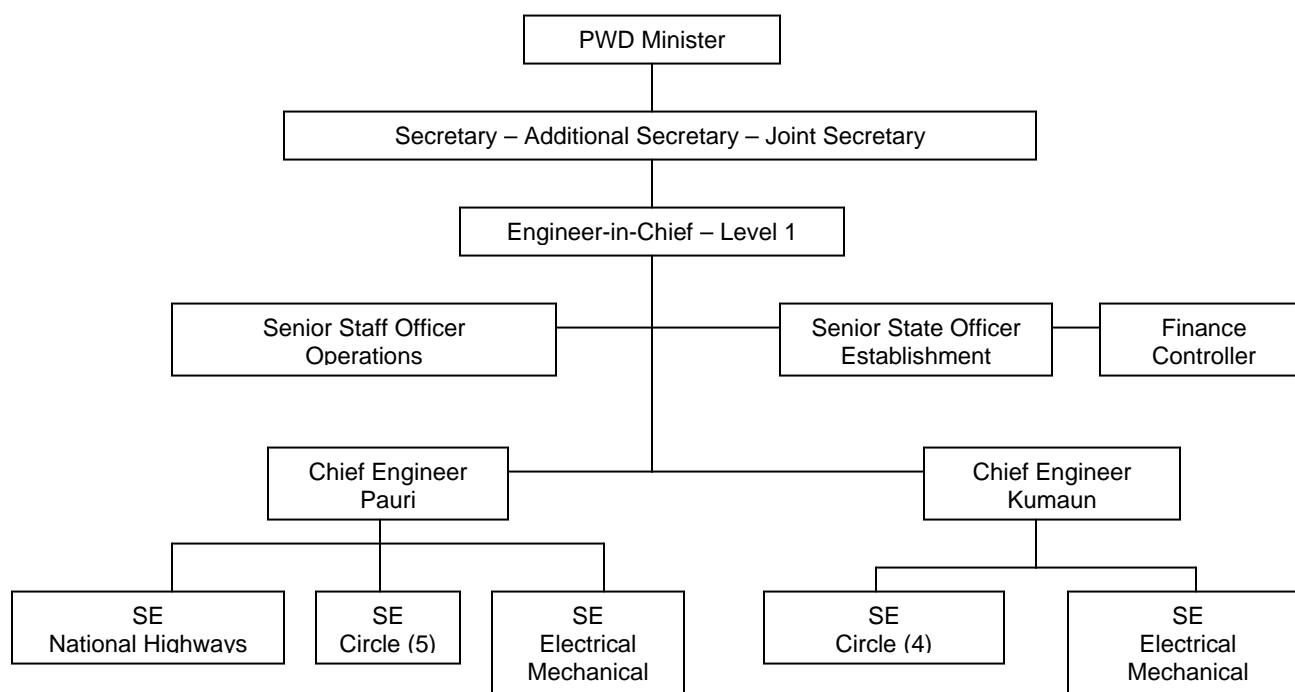
ADB=Asian Development Bank; km=kilometers; PBC=performance based contract; PFR=periodic financing request; PWD=Public Works Department; Source: ADB estimates.

## INSTITUTIONAL ASSESSMENT AND CAPACITY DEVELOPMENT PLAN

### A. PWD's Structure and Responsibilities

1. The Public Works Department (PWD) is a statutory department of the state of Uttaranchal under the Ministry of Public Works Department. PWD is headed by chief engineer I, who reports to the PWD secretary appointed by the Public Service Commission of India. The secretary is assisted by an additional secretary of PWD, also appointed by India; and a joint secretary appointed by the state Public Service Commission. The secretaries are responsible for establishing the policy framework and monitoring organizational performance. The current organization chart is in Figure 3.1, showing the reporting lines and other senior staff positions.

**Figure A3.1: Current Organizational Structure of PWD**



Abbreviations: PWD = Public Works Department; SE = superintendent engineer.

2. For planning, budgeting, and executing work programs, the state is divided into two main PWD operational zones headed by a chief engineer. The zones are divided into circles headed by superintending engineers, divisions headed by executive engineers, and areas headed by assistant engineers. Each AE is supported by three to four junior engineers. In total, PWD has 9,383 employees: 895 engineers; 2,061 administrative staff; 1,425 field staff, including skilled laborers and drivers; and 5,000 maintenance workers. The maintenance workers are being phased out through a hiring freeze. Staff cost has decreased as a percentage of the administrative budget from 25% in FY2003 to the current estimate of 16% in FY2005, which is considerably less than the national average.

### B. Procedural Deficiencies

3. **Clearance Procedures.** More than 50% of the PWD road network passes through forest areas. As such, PWD must obtain clearances from the state Department of Forests (DOF) for

any major repairs or rehabilitation work on those roads. Clearances for up to 5 hectares of land are issued through its district offices. However, given the average 10-meter rights-of-way (ROW) of most roads, the maximum length of a road that a district DOF office can clear is 5 kilometers (km). Clearances for longer stretches must be obtained from higher authorities of the state or central governments, which is often time consuming. In a state where the construction season is short,<sup>1</sup> those delays have had undermined productivity significantly.

4. **Excessive Travel Times.** The hilly terrain that characterizes the state limits speeds to 25–30 km per hour on most roads. As a result, traveling from each of the two zone offices to many of the respective divisions takes 1 day, and to the circles requires half a day. That reduces the time available for supervision and monitoring of works by PWD staff.

5. **Excessive Consultation.** Another factor<sup>2</sup> that affects effective supervision and monitoring time is the many state-level meetings between headquarters staff and chief engineers; and zone-level meetings between the superintending engineers and the executive engineers. Reportedly, an average of 10–20 days a month are spent attending meetings, which mostly address one outstanding issue and are often do not produce a result.

6. **Archaic Manuals.** PWD's procedures still contain remnants of the system set up in the mid-1850s, and are guided by manuals from Uttar Pradesh. For instance, the outline of the basic organizational structure and job descriptions stem from the *Financial Handbook, Volume VI* that the government of Uttar Pradesh issued in 1974. Likewise, maintenance methods are based on the *Maintenance Manual for Roads* issued by the PWD of Uttar Pradesh in 1984. While supplementary manuals and guidelines have been issued on an ad hoc basis, an integrated updated manual has not been produced.

7. **Inadequate Planning.** Planning is limited to preparation of budget proposals for the next fiscal year, largely in isolation from state development goals and stakeholder views. Proposals are based on quantities from project lists submitted by the districts and inflation-adjusted unit rates from the previous fiscal year, and include amounts for completing ongoing works. Depending on the central allocations to the state roads sector for the corresponding fiscal year, and the share of federal projects in the work program, the state determines and allocates the additional funding needed to accomplish PWD's work program from its own sources. As a result, road investment has been uncoordinated and unstable. Moreover, this has perpetuated the practice of preparing single-year work programs based on ad hoc criteria, which in turn has created opportunities for political interference.

8. **Weak Accounting and Reporting.** PWD uses manual accounting procedures, which are based on the financial handbook adopted by Government organizations and the Central Public Works accounts Code. PWD does not have (i) a formal system of regular financial management reporting, (ii) a system of comparing actual expenditures with budgeted and programmed allocations, or (iii) a practice of exception reporting. The comptroller and auditor general of India conduct the statutory audit of PWD once per year through the Office of the State Accountant General of Uttaranchal, which is also responsible for the accounting and record keeping aspects of PWD. The audit report is not received on a timely enough basis to allow corrective action to be taken. Further, an external audit opinion is not expressed on PWD as an entity.

<sup>1</sup> About 6 months from mid-February to the end of June, and from mid-September to mid-November.

<sup>2</sup> Highlighted by working groups at an institutional review workshop conducted by the project preparatory technical assistance consultants in Dehradun on 10 April 2006.

9. **Inadequate Supervision and Monitoring.** The average observed service life of improved and new roads is almost half the established service life for comparable roads internationally. For instance, rehabilitation is needed every 3–4 years, compared to every 6–8 years if properly constructed. This is attributable to construction methods and material that sometimes are unsuited for the climate and terrain in Uttaranchal, as well as to inadequate supervision. Limited quality control and survey equipment, visual inspection and other imprecise techniques,<sup>3</sup> and limited expertise among the engineers constrain supervision. On average, a supervision engineer makes less than three site visits per month. Periodic maintenance interventions are determined through ad hoc visual inspection of a limited number of roads.

10. **Dated Standards and Specifications.** The sequence followed by the junior engineers who prepare bidding documents is site inspection and identification of required intervention(s), followed by preparation of bills of quantities. Force account workers perform typical interventions under routine maintenance, including (i) shoulder repairs, (ii) pothole patching, (iii) landscaping, (iv) removal of minor earth slips, and (v) road sign and furniture repair. However, performance standards have not been established, and evaluation of works is highly subjective. Construction specifications generally are set according to Indian Roads Congress' geometric and pavement design standards.

11. **Low Value of Contracts and Quality of Contractors.** The practice of awarding many small contracts reduces the intensity of supervision and monitoring, and attracts only contractors with limited capacity to perform quality work (Appendix 2).

12. **Lack of Incentives.** The opportunities for promotion and career development are limited. More than half the executive engineers and superintending engineers are designated as "acting". Although training courses are available, finding a relevant course at a convenient time has been difficult for most staff.

### C. Ongoing or Planned Efficiency Improvement Initiatives

13. **Reduction in Implementation Delays.** The chief secretary of Uttaranchal has instructed district magistrates to conduct biweekly coordination meetings with PWD, DOF, and other relevant government agencies to ensure that all clearance applications are approved within 2 weeks.

14. **Increased Supervision Capacity.** Funding has been allocated for purchasing 100 new vehicles, and additional surveying and testing equipment, in FY2006. Legislative approval has been received for subdividing the two existing zones, which would enable the number of operational zones to be increased to four. Additionally, state approval has been sought for (i) designation of a separate chief engineer for externally funded projects, including National Highways (NH), Pradhan Mantri Gram Sadak Yojana (PMGSY), and Asian Development Bank (ADB); (ii) establishing one maintenance and one PMGSY division in each circle; and (iii) establishing asset development and maintenance cells at the zone level. These changes are expected to increase accountability, enable more delegation of duties to the divisions and circles, increase monitoring of asset development and asset maintenance targets, increase familiarity with best practices, and increase overall return on investment.

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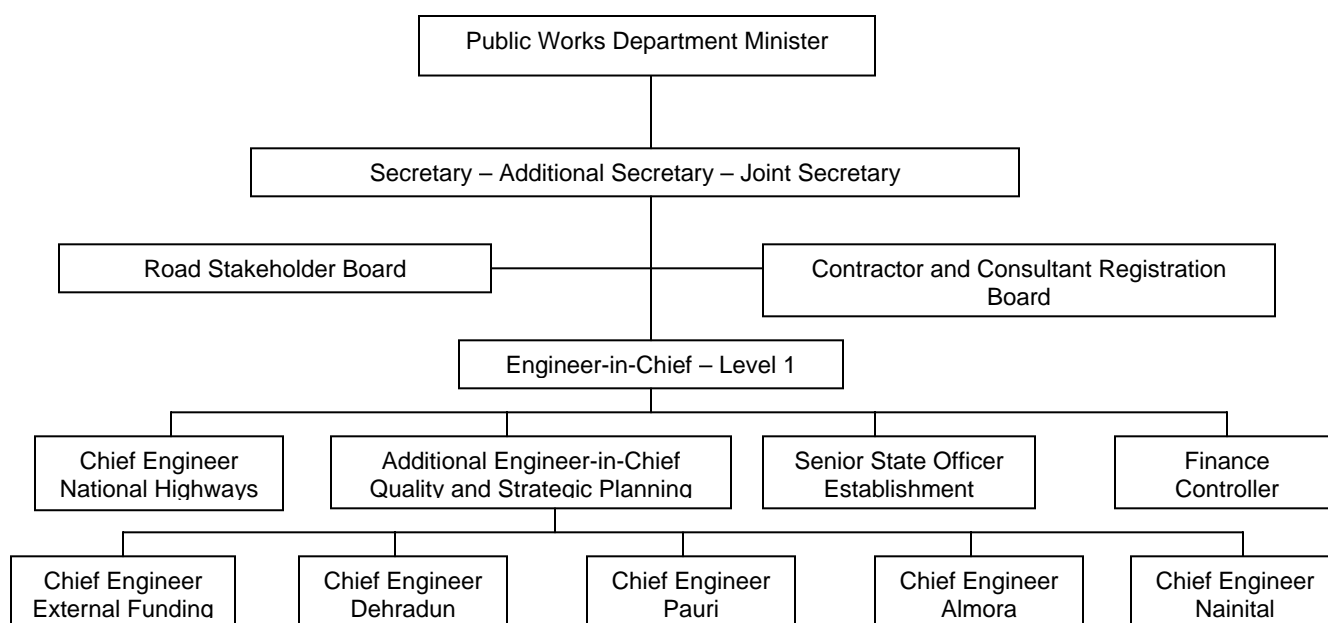
<sup>3</sup> For example, distance is based on odometer readings; pavement thickness is not based on soil strength; quantities are estimated using average per km values.

15. **Computerization.** A Web-based management information and project management system (MIPMS) funded by the World Bank is expected to be introduced to PWD by December 2006. This would vastly improve asset planning, budgeting, construction and maintenance work monitoring, personnel management, and procurement.

16. **Draft Road Policy.** A draft road policy, covering 10 years through 2015, has been prepared to guide road sector reforms aimed increasing economic growth and ensuring an equitable distribution of benefits among regions and population groups. Reforms will ensure that (i) investment is in line with the Road Development Plan (RDP), or priorities based on sound technical and economic criteria; (ii) asset maintenance strategies will increase service life and private sector participation; (iii) adequate funds are available for road development and maintenance; and (iv) legislation is in place to promote sector efficiency.

17. **Improved Planning.** The state has prepared a RDP to guide the implementation of the road policy (Appendix 2). Additionally, the state government has approved the creation of a separate unit within PWD headquarters that would be responsible for strategic planning. The planning unit would undertake review and updating of the RDP, programming and budgeting, and monitoring and evaluation. The unit will be headed by a chief engineer, supported by professionals. The organizational chart after the establishment of this unit is shown in Figure 3.2.

**Figure 3.2: Organizational Chart of PWD After Restructuring**



18. **Increased Stakeholder Participation.** PWD will establish a road board to increase stakeholder participation and transparency of decision making. This board will ensure that the views of road users and stakeholders are considered for strategic planning and investment decision making. The secretary PWD would chair the board, which would include the engineer in chief of PWD, as well as six to eight members representing (i) private and public sector freight and passenger transport service providers, (ii) consumer protection groups, (iii) traffic police, (iv) chamber of commerce, (v) engineering and contractor associations, (vi) the state accountant general or a senior deputy of the office of the accountant general, and (vii) other state stakeholder agencies.

## **E. Actions Required to Support Efficiency Initiatives**

19. **Information Technology.** Staff training for MIPMS on data collection and input, and report production will be needed to enhance PWD-wide usage of the system.

20. **Business Processes.** Operations manuals and guidelines must be revised in line with the contract administration duties that will ensue from the creation of new zones; establishment of the planning division; new civil works procurement methods, such as performance-based contracts; and the need to be more customer-oriented. The state also must finalize the road policy and submit it for approval by the state cabinet, and implement the organizational restructuring.

21. Financial management and corporate governance mechanisms must be improved to support the increased level of investment, based on the RDP. A review of the financial handbook, the PWD account codes, and related financial guidelines and procedures must be undertaken to (i) revise and update financial and management accounting and related procedures, (ii) ensure compliance with related ADB financial management guidelines, and (iii) strengthen procedures necessary to ensure compliance with anticorruption guidelines and good governance. A training module to enhance awareness of these mechanisms must be developed, and training sessions conducted.

22. Adequate annual financing is needed to implement the RDP if the share of state roads in good condition<sup>4</sup> is to be increased to 90% by 2017. An additional \$14 million is needed to clear the maintenance backlog.<sup>5</sup>

## **F. ADB Assistance**

23. To accelerate the reform process and increase its impact, ADB has prepared an infrastructure management component to be implemented under Project 1 of the Investment Program. This component will provide technical support to PWD through a consulting service contract to restructure PWD and reengineer the business processes, develop a human resources strategy and provide staff and contractor training. The expected outcomes of this

<sup>4</sup> Current condition of the network was estimated by the consultant engaged to develop the road development plan. The estimate for 2015 is based on the length of scheduled for rehabilitation under the investment program plus an average allowance of 150 km per year through the PWD program.

<sup>5</sup> The annual costs of routine and periodic maintenance are Rs1.05 billion and Rs0.95 billion respectively. Routine maintenance costs are based on unit per km cost estimates for 5-year post construction performance-based contracting on PMGSY roads in Uttaranchal adjusted for road width and condition of the existing PWD network. Periodic maintenance costs are based on per km costs for 50 mm bituminous concrete overlay applied on a six- to eight-year cycle depending on road class.

components and implementation schedule are in Table A3. The outline terms of reference and scope of services for the consultants are in Supplementary Appendix 8.

24. **Organizational Restructuring and Business Process Reengineering.** Support provided for these activities will cover revisions to operating manuals to reflect the new processes. These include (i) preparation and approval of divisional budget proposals; (ii) supervision and monitoring of works; (iii) procurement, particularly state-wide performance-based maintenance works; (iv) use of the MIPMS; and (v) guiding and assisting the PWD in obtaining the necessary approvals for the revised manuals. The revisions will be based on current requirements and best practices in road construction and maintenance.

25. **Human Resources Strategy.** Based on an assessment of the skills needed to implement the RDP, consultants will prepare and deliver training programs for PWD staff. They also will provide training and guidance for the state road contractors. The main objective of the training modules is to familiarize PWD staff with the revised manuals.

26. **Financial Management.** Finance and accounting staff deployed at the PWD divisions will receive training on the use of the new planning, budgeting, project evaluation, and monitoring systems, as well as the MIPMS. Additionally, semiannual reporting requirements will be introduced. A firm of chartered accountants will perform external audits, in compliance with international accounting and auditing standards, to ensure transparency, accountability, and good governance.

27. **Risk Management and Insurance.** The consultants also will review the adequacy of insurance coverage of all assets, workmen's compensation, and public liability; and propose a risk management and insurance plan to be considered by the state.

## **G. Capacity Development Plan**

28. The capacity development plan is in Table A3. This plan summarizes the ongoing initiatives being progressed within PWD, and it highlights the areas in which PWD will require consulting services support to facilitate achievement of the objectives. The table shows the time frame within which actions must be completed to maximize the impact, and to link such actions with the infrastructure improvement schedule.

Table A3.1: Capacity Development Plan

Subject	Actions Needed	ADB Assistance	Time Frame
Strategic Planning and Stakeholder Participation	Obtain cabinet approval of the road policy	(i) Finalize draft policy document (ii) Prepare documentation needed for submission to cabinet	(i) 2007 Q3 (ii) 2007 Q3
	Make planning unit operational	(i) Prepare planning guidelines (ii) Establish performance targets (iii) Prepare annual report formats and guide preparation of first annual report	(i) 2007 Q3 (ii) 2007 Q4 (iii) 2008 Q4
	Establish the road board	(i) Prepare TOR and composition of the board (ii) Assist with convening quarterly meetings (iii) Help PWD prepare and submit annual report	(i) 2007 Q3 (ii) 2008 Q1 (iii) 2008 Q4
Supervision, Monitoring, and Accountability	Improve operational procedures	(i) Review and revise operational manuals (ii) Obtain relevant approvals of manuals for adoption by PWD (iii) Establish training needs	(i) 2007 Q3 (ii) 2008 Q1 (iii) 2007 Q4
MIMPS	Make system fully operational	(i) Review data collection and input procedures (ii) Review output formats and information sharing mechanisms (iii) Establish training needs	(i) 2007 Q2 (ii) 2007 Q2 (iii) 2007 Q3
Contracting Mechanisms	Improve contracting mechanisms (i) Construction and periodic maintenance (ii) Routine maintenance	(i) Propose packaging to increase contract size and increase incentives for contractors to upgrade equipment and staff (ii) Assess potential for performance-based, area-wide maintenance contracting, and prepare spatial plan for implementation (iii) Establish training needs for contract administration and contractor development	(i) 2007 Q4 (ii) 2007 Q4 (iii) 2008 Q1



Subject	Actions Needed	ADB Assistance	Time Frame
Human Resources Development Strategy	Development of skills and achieving the right level of skills mix within the PWD	(i) Assess training needs identified in each area (ii) Review available training programs, sources and costs of delivery (iii) Prepare training modules including study tours and other hands-on methods of skills enhancement in each area (iv) Establish links, if necessary, to deliver training programs (v) Conduct training	(i) 2007 Q4 (ii) 2007 Q4 (iii) 2008 Q3 (iv) 2008 Q3 (v) 2008 Q4
	Increase project management and construction technology skills of contractors	(i) Conduct training workshops for contractors on preparation of work schedules and quality assurance programs, bidding on performance-based contracts, and financial management	(i) 2007 Q4
	Increase financial management capability	(i) Provide training to finance and accounting staff deployed at the PWD divisions (ii) Introduce semiannual reporting requirements (iii) Introduce requirements for external audits	(i) 2008 Q2 (ii) 2007 Q2 (iii) 2007 Q2

PWD=Public Works Department, Q1=first quarter, Q2=second quarter, Q3=third quarter, Q4=fourth quarter, TOR=terms of reference

## SELECTION CRITERIA AND APPROVAL PROCESS FOR PROJECTS

### Road

**Selection Criteria** To be financed from the multitranche financing facility for the Uttaranchal State-Road Investment Program as part of a project, each road should:

- (i) satisfy the requirements of the agreed financing framework agreement, environmental assessment and review framework, indigenous peoples development framework, and the resettlement framework within the specified time frames without causing delays to the project or Investment Program implementation schedules;
- (ii) be an existing section or the full extent of a state highway, major district road, other district road, village road, or light vehicle road, and be part of the network administered by the Public Works Department (PWD) of Uttaranchal;
- (iii) be on the prioritized list<sup>1</sup> in the road development plan (RDP), with precedence given to the highest-ranking roads. This prioritized road list will be updated annually, with roads re-ranked after removing those improved under other programs and adding roads that need urgent repairs ranked alongside roads in the existing list;
- (iv) provide access to or link remote communities that do not fall under the Pradhan Mantri Gram Sadak Yojana Program or other state and central schemes, and improve overall network connectivity;
- (v) be improvable within the existing right-of-way and/or derive significant direct or indirect benefits in the form of year-round motorability, significant safety improvements, etc;
- (vi) be at least 5 km long. Roads shorter than 5 km will only be considered if improvement would offer (a) significant benefits to the road network, (b) specific social benefits to disadvantaged groups of the population, (c) improved access to firm development proposal(s), and/or (d) improved access to identified tourist sites; and
- (vii) be one for which necessary central and state government approvals have been, or could be, obtained in time for the project or Investment Program implementation schedules to be maintained.

### Project Approval Procedure

Roads for improvement and components in Project 1, prepared under Asian Development Bank's technical assistance,<sup>2</sup> have been approved.

For subsequent projects financed from the Facility, the approval procedures will be as follows:

- (i) In consultation with PWD's circle and divisional offices, the project management unit (PMU) will update the priority list of the RDP by

<sup>1</sup> Details of the roads prioritized in 2005 and assigned to the first four projects are in Table A4.1.

<sup>2</sup> ADB. 2005. *Technical Assistance to India for Uttaranchal State Roads*. Manila (TA4607-IND).

- revising the priorities with specific reference to the selection criteria listed above (or use annual RDP updates prepared by PWD's planning unit after it is fully functional).
- (ii) Based on the updated priority list, the PMU will identify the roads to be included in the next project to be financed under the Facility, and submit the project proposal to the secretary of PWD for approval.
  - (iii) Upon approval of a project proposal by the secretary of PWD, the PMU<sup>3</sup> will prepare detailed project reports (DPR) for the project roads, in accordance with national, state, and ADB's social and environmental requirements, economic criteria, and national and state technical standards for road design. Simultaneously, the PMU may initiate advance action, in accordance with ADB's requirements.
  - (iv) Based on the DPR detailing the environmental, social, and economic analyses of physical improvements to all roads included in the project, the PMU would prepare a summary project appraisal report in the format outlined in the facility administration memorandum. The summary would include descriptions of all components (physical and nonphysical) of the project.
  - (v) The secretary of PWD will approve the summary appraisal report, which will be submitted to ADB with the draft periodic financing request for review.
  - (vi) If acceptable, the secretary of PWD will ensure that the draft PFR is modified and revised, as required by ADB; and submit to ADB through the Department of External Affairs of the Government of India for presentation to the Board for approval.

### **Monitoring During Implementation**

PWD will adhere to guidelines, policies, and other requirements during pre-construction through reviews of supporting documentation, and during physical implementation, monitor project impacts and contractor performance through specialists engaged to support the PMU and the supervision consultants.

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<sup>3</sup> Or its consultants.

**Table A4.1: Roads Prioritized for Improvement in Projects 1 to 4****Project 1**

District	Block	Road Type	Road From	Road To	Road Length (km)	Length to Be Improved (km)	Cost (Rs Million in 2005 prices)
Almora		SH	Almora	Bageshwar	72.0	72.9	366.1
Almora		MDR	Raniket	Mohan	70.2	70.2	262.8
Almora		SH	Barechhina (Almora)	(Sheraghat Berinag)	42.0	42.3	224.6
Bageshwar		MDR	Udiyari Bend (Berinag)	Kanda Bageswar)	25.0	25.7	126.1
Chamoli		ODR	Nandprayag	Ghat	18.5	18.5	57.1
Chamoli		ODR	Rudrprayag	Pokhri	14.5	14.5	48.8
Champawat		VR	Pula	Chamdewal Silling	6.5	6.5	33.4
Champawat		VR	Lohaghat	Choumel	7.5	7.5	26.2
Champawat		VR	Tuligarh	Bhairav Mandir	6.3	6.3	101.1
Champawat		VR	Kakrali	Thuligarh	13.0	13.0	206.5
Dehradun		MDR	Kalsi	Chakrata	41.6	41.6	133.4
Nainital		ODR	Betalghat	Bhatrojkhan	16.7	16.7	47.6
Nainital		VR	Nathuakhan	Suyalbadi	29.0	29.0	113.5
Pauri		ODR	Pathradkhal	Umrasu	18.0	18.0	52.8
Pauri		ODR	Pauri	Srinagar	42.0	18.0	43.4
Pauri		ODR	Fatehpur	Lansdowne	22.0	21.8	42.8
Pithoragarh		SH	Udiyari Bend	Thal	22.0	22.0	157.9
Rudrprayag		ODR	Jakholi	Guptkashi	54.3	13.1	57.4
USNagar		ODR	Zafarpur	Gularbhoj	13.8	13.8	64.9
USNagar		ODR	Jaitpur	Dhanori	10.8	10.8	67.0
USNagar		ODR	Mukandpur	Dhakiya Gulabo	25.0	25.0	138.4
Uttarkashi		ODR	Naugaon	Purola	19.0	17.9	30.4
Uttarkashi		ODR	Kuwa-Kafnol	Rarhi	48.0	47.6	78.9
<b>Total for Project 1</b>						<b>572.6</b>	<b>2,481.1</b>

km = kilometers; LVR = light vehicle roads; MDR = major district roads; ODR = other district roads; VR = village roads

Source: Road Development Plan. November 2005.

## Project 2

District	Block	Road Type	Road From	Road To	Road Length (km)	Length to Be Improved (km)	Cost (Rs million 2005 prices)
Almora	Hawalibagh	MDR	Almora	Bajinath	56.0	56.0	126.8
Bageshwar	Bageshwar	ODR	Kalnaband	Pantkwerali	7.0	7.0	25.2
Bageshwar	Bageshwar	VR	Kafligair	Kholseer	8.0	8.0	19.3
Chamoli	Dasoli	ODR	Poukhri	Gopeshwar	24.4	24.4	52.6
Chamoli	Gaisain	VR	Bachhuaban	Kuligrad	19.6	19.6	47.4
Chamoli	Dasoli	ODR	Gopeshwar	Devarkhadora	10.0	10.0	25.6
Champawat		MDR	Loharghat	Valikh	54.4	48.4	109.6
Dehradun	Chakrata	ODR	Moori	Tayoni	20.0	20.0	43.1
Dehradun	Chakrata	ODR	Chakrata	Lakhamandal	65.5	16.2	58.3
Haridwar		MDR	Narsan	Puhana	29.7	29.7	40.7
Haridwar	Bahadarabad	VR	Bahedi	Rajputana	6.0	6.0	7.7
Haridwar	Bahadarabad	VR	Piran Kaliyar	Daluwalakala	5.0	5.0	6.4
Haridwar	Bahadarabad	VR	Aneki	Gadhmipur	6.0	6.0	7.7
Haridwar	Narsan	ODR	Manglore	Landhora	7.6	7.6	10.2
Haridwar	Narsan	VR	Delhi- Nitipass	Nasirpur	7.3	7.3	9.4
Haridwar	Roorkee	VR	Aasafnagar	Ikbapur	10.5	10.5	13.5
Nainital		SH	Haldwani	Matkota	25.5	25.5	120.0
Nainital	Okkhalkhand	VR	Bhidapani	Josyuda	5.0	5.0	12.1
Nainital	Okkhalkhand	VR	Maurnela	Majhola	7.0	7.0	13.4
Pauri		MDR	Duggada	Laxmanjhula	114.0	84.0	219.2
Pauri		ODR	Dumakot	Duggada	86.5	86.5	262.5
Pauri	Dugadda	ODR	Kodiya	Kimsar	22.0	21.0	75.7
Pauri	Dugadda	ODR	Kotdwar	karnwashram	13.5	10.5	22.6
Pauri	Dugadda	ODR	Kotdwar	Pulinda	21.7	21.7	64.5
Pauri	Pauri	ODR	Betal	Advani	38.8	38.8	137.0
Pauri	Dugadda	LVR	Nathukhal	Simlana	5.7	5.7	13.8
Pauri	Dugadda	ODR	Hanumanti	Fatehpur	6.7	6.7	14.4
Pauri	Kot	ODR	Nahsen	Khanda	25.0	25.0	90.1
Pauri	Pauri	ODR	Pauri	Ghinwada	26.0	26.0	77.8
Pauri	Dugadda	ODR	Siddhbali	Kumbhichod	5.0	5.0	10.8
Pauri	Dugadda	ODR	Kaudiya	Motadhank	7.2	7.2	15.5
Pauri	Dugadda	ODR	Ramnagar	Kotdwar	37.3	37.3	98.9
Pauri	Dugadda	LVR	Raghubal	Chaukhri Khet	5.0	5.0	12.1
Pauri	Dugadda	LVR	Paukhal	Maundai	5.0	5.0	12.1
Pithoragarh		ODR	Pithoragarh	Julaghat	36.0	36.0	77.6
Pithoragarh		MDR	Thal	Jauljibi	34.0	34.0	77.0
Pithoragarh		MDR	Thal	Berinag	30.0	30.0	67.9
Rudrprayag	Jakholi	VR	Mayali	Jakholi	8.2	8.2	15.7
Rudrprayag	Agastmuni	VR	Agastmuni	Ganeshagar	7.8	5.8	13.9
Rudrprayag	Ukimath	ODR	Jokholi	Bhiri	38.3	38.3	138.2
Tehri		SH	Kirtinagar	New Tehri	80	80.0	253.6
Tehri		MDR	NewTehri	Ghansyali-Tilwara	86.0	86.0	194.7
Tehri		MDR	Chamba	Mussorie	54.0	16.0	36.2
Tehri	Kirtinagar	ODR	Kirtinagar	Sorakhal	59.0	48.0	158.5
Tehri	Kirtinagar	ODR	Kirtinagar	Dangdhari	22.0	22.0	72.1
Uttarkashi		MDR	Bhaldiana	Uttarkashi	75.0	75.0	169.8
Uttarkashi	Naugaon	ODR	Naugaon	Rajgarhi	30.0	30.0	79.9
Uttarkashi	Dunda	ODR	Dunda	Fold	21.5	21.5	61.6
Uttarkashi	Purola	ODR	Purola	Jarmola Moree	34.5	34.5	74.3
<b>Total for Project 2</b>						<b>1,269.7</b>	<b>3,367.0</b>

km = kilometers; LVR = light vehicle roads; MDR = major district roads; ODR = other district roads; VR = village roads

Source: Road Development Plan. November 2005.

**Project 3**

District	Block	Road Type	Road From	Road To	Road Length (km)	Length to Be Improved (km)	Cost (Rs million in 2005 prices)
Almora	Dhauladevi	ODR	Suakhan	Chalnichhena	10.0	10.0	33.2
Almora	Tarikhet	ODR	Siuni	Silore Mahadev	20.0	15.5	55.9
Almora	Chaukutiya	ODR	Chokhatiya	Bachhuvaban	10.0	9.0	32.5
Almora	Takula	ODR	Someshwar	Girichhina	10.0	10.0	34.6
Almora	sult	ODR	Chamkhala	Dabhra	9.4	5.4	19.5
Almora	sult	VR	Harda	Bhikiyasain	12.0	12.0	29.0
Almora	Tarikhet	ODR	Ganiadeoli	Amyari	11.8	8.4	30.3
Almora	Tarikhet	ODR	Ganiadeoli	Vishalkot	10.0	10.0	36.1
Bageshwar	Garur	VR	Bajinath	Gwaldam	19.0	19.0	45.9
Bageshwar	Kapkot	ODR	Shamaniti	Liti Gogina	11.0	11.0	39.7
Bageshwar	Kapkot	ODR	Liti Market	Liti village	5.0	5.0	18.0
Bageshwar	Bageshwar	VR	Bageshwar MDR 17	Kapkot	24.0	24.0	58.0
Chamoli	Dasoli	ODR	Chamoli	Guptakashi	49.0	38.0	81.9
Chamoli	Pokhari	ODR	Pokhri	Karnaprayag	25.8	25.8	55.6
Chamoli	Pokhari	ODR	Pokhri	Gopeshwar	36.0	36.0	77.6
Chamoli	Tharali	ODR	Tharali	Ghat	10.0	10.0	36.1
Chamoli	Dasoli	VR	Chamoli	Sartoli	10.0	10.0	23.2
Champawat	Lohaghat	VR	Kimtoli	Pulla	5.0	5.0	9.6
Champawat	Champawat	ODR	Laluapani	Banlekh	8.3	8.3	17.9
Champawat	Champawat	VR	Champavat Manch	Tamali	52.5	15.5	37.5
Champawat	Champawat	VR	Narsingh Danda	Guroli	7.0	7.0	16.4
Champawat	Champawat	VR	Punave Sipti	Sandark	6.0	5.0	12.1
Champawat	Lohaghat	LVR	P.C.S.	Mandalak	12.0	12.0	29.0
Champawat	Champawat	VR	Sukhidhang	Shyamalatal	5.5	5.5	10.5
Dehradun	Chakrata	ODR	Minas	Atal	5.0	17.0	61.3
Dehradun	Chakrata	ODR	Kharsi (Link Marg)	Undefined	24.8	15.8	56.8
Dehradun	Chakrata	ODR	Tyoni	Kathiyan	30.0	15.0	54.1
Dehradun	Kalsi	ODR	Sahiya	Kwanu	9.3	5.0	18.0
Dehradun	Kalsi	LVR	Koti	Gram Saradi (Sampark Marg)	8.0	8.0	19.3
Dehradun	Chakrata	LVR	Chakrata	Newra	6.5	6.5	15.7
Dehradun	Kalsi	LVR	Lalpool	Bisnoi	6.5	6.5	15.7
Haridwar	Bahadarabad	VR	Ruhalki	Sehedeupur	5.1	5.1	6.6
Haridwar	Bahadarabad	VR	Gaindikhatan	Laldhang	9.9	9.9	13.1
Haridwar	Bahadarabad	VR	Aurangabad	Teliwala	6.0	6.0	8.2
Haridwar	Bahadarabad	VR	Piran Kaliyar	Mujahidpur Sattiwala	15.9	15.9	20.5
Haridwar	Laksar	VR	Raysi	Bhogpur	9.5	9.5	12.2
Haridwar	Bhagwanpur	ODR	Bhagwanpur	Bhalsvagaj	11.6	11.6	15.6
Haridwar	Bhagwanpur	ODR	Bhagwanpur Sikroda	Khedi Shikohpur	13.5	13.5	18.2
Haridwar	Bhagwanpur	VR	Bhagwanpur	Bahedi	9.6	9.6	12.4
Nainital	Haldwani	VR	Haripur	Bachhi	12.7	11.7	22.4
Nainital	Haldwani	VR	Madanpur	Kholia	13.4	13.4	25.7
Nainital	Dhari	VR	Kasiyalekh	Supi	10.5	10.5	24.9
Nainital	Bhimtal	LVR	Mangoli	Khamari	5.0	5.0	12.1
Nainital	Ramgarh	ODR	Malla-Talla	Nathuvkhan	16.0	16.0	34.5
Nainital	Dhari	VR	Kalapataal	Saliyakot	7.8	7.8	18.7
Nainital	Haldwani	VR	Chandni Chak	Haripur Jaman	6.0	6.0	11.5
Nainital	Ramgarh	VR	Odakhan	Pasiyapani	12.0	12.0	29.0
Nainital	Okkhalkhand	VR	Kunwar Band	Dholigaon	7.0	7.0	13.4
Nainital	Kotabagh	LVR	Pangot	Kunjkhokrak	23.0	23.0	55.6
Nainital	Dhari	VR	Kashiya Lekh	Dhari	13.0	13.0	30.9
Pauri	Dwarikhal	VR	Chailusain	Singtali	40.0	40.0	93.9
Pauri	Rikhanikhal & Bironkhal	ODR	Rikhnikhal	Birokhal	32.5	32.5	115.7

District	Block	Road Type	Road From	Road To	Road Length (km)	Length to be Improved (km)	Cost (Rs Million in 2005 prices)
Pauri	Dwarikhal & Jahrikhal	VR	Satpuli	Dudharkhal	25.0	25.0	54.7
Pauri	Dwarikhal & Jahrikhal	ODR	Satpuli	Sisaldi	22.5	22.5	74.6
Pauri	Kaljikhal	VR	Bhedakhal	Khanda	10.6	10.6	25.6
Pauri	Dwarikhal	ODR	Gumkhal	Singtali	20.0	20.0	43.1
Pauri	Yamkeshwar	VR	Naugaonkhal	Tunakhal	22.3	7.3	17.7
Pauri	Kaljikhal	ODR	Pipla	Teka	15.0	5.0	18.0
Pauri	Yamkeshwar	VR	Nalikhal	Pokhrikhet	9.6	9.6	22.8
Pauri	Nainidanda	VR	Khaludanda	Apolosera	12.0	10.0	24.2
Pauri	Dwarikhal	ODR	Nalikhal	Banchuri	27.0	15.0	54.1
Pauri	Yamkeshwar	VR	Pipalkoti	Mahadev	5.3	5.3	10.1
Pauri	Dwarikhal	VR	Chailusain	Devikhet	10.0	10.0	23.7
Pauri	Dwarikhal / Jahrikhal	VR	Sisaldi	Satpuli	10.0	10.0	23.2
Pauri	Dwarikhal	ODR	Matiyali	Dwarikhal	19.0	19.0	64.2
Pauri	Bironkhal	VR	Soparkhal	Lalitpur	19.0	19.0	45.9
Pauri	Rikhnikhal/Bironkhal/Thalisen	ODR	Rikhanikhal	Thalisain	58.0	21.0	75.7
Pauri	Rikhanikhal	VR	Dudharkhal	Tadkeshwar	6.0	6.0	14.0
Pauri	Kot	VR	Sabdarkhal	Kundadhar	8.0	8.0	19.3
Pauri	Dugadda	LVR	Simliya (Sampark Marg)	Undefined	12.0	12.0	29.0
Pauri		ODR	Satpuli	Pokhara	51.0	51.0	89.4
Pauri	Kaljikhal	LVR	Banekh	Thapala	11.2	11.2	27.1
Pauri		SH	Chipalghat	Chaurikhal	45.0	45.0	211.8
Pauri	Dwarikhal / Jahrikhal	ODR	Dotiyal	Basda	26.5	26.5	95.5
Pithoragarh	Munakot	VR	Satsiling	Thal	50.0	50.0	120.9
Pithoragarh	Bin	ODR	Pithoragarh	Bans	20.0	20.0	48.9
Pithoragarh	Bin	VR	Chandak	Chera - Digtoli	5.0	5.0	9.6
Pithoragarh	Berinag	SH	Sheraghat	Udiyari Bend	44.0	44.0	174.2
Pithoragarh	Munakot	VR	Aicholi	Simalkote	5.0	5.0	12.1
Rudrprayag	Agustmuni	LVR	Raitoli	Jasoli	20.0	20.0	48.4
Rudrprayag	Agustmuni	ODR	Rudraprayag	Pokhri	35.0	35.0	75.4
Rudrprayag	Ukimath	ODR	Chamoli	Guptkashi	35.3	35.3	76.1
Tehri	Devprayag	VR	Roadhar	Gaumukh	14.5	14.5	31.8
Tehri	Devprayag	ODR	Bagwan	Jammikhal	25.0	25.0	88.0
Tehri	Devprayag	ODR	Lachhmoli	Jamni khal	32.0	32.0	115.4
Tehri	Kirtinagar	ODR	Kilkalashwar	Silkhakhal chonikhal	23.0	23.0	75.7
Tehri	Jakhindar	ODR	Pratap nagar	Tehri	36.0	10.0	34.6
Tehri	Juanpur	ODR	Sawakholi	Thatyur	22.0	22.0	47.4
Tehri	Bhilangana	VR	Chatiyara	Kepars	12.0	12.0	29.0
Tehri	Bhilangana	ODR	Ghansali	Ghuttu	31.3	9.0	29.6
Tehri	Kirtinagar	VR	Duggdda	Saur pipaldhar	21.0	12.0	27.5
Tehri	Juanpur	ODR	Kempty	Chadogi	21.8	21.8	62.6
Tehri	Bhilangana	VR	Sendul	Patur Gaon	10.0	10.0	24.2
Tehri	Narendranagar	ODR	Agrakhal	Deoli	13.3	5.0	18.0
Tehri	Pratapnagar	ODR	Jajal Gaja	Devprayag	70.5	70.5	151.9
Tehri	Juanpur	ODR	Aglar	Thathyar	42.5	14.5	52.3
USNagar	Rudrapur	ODR	Kitcha	Dareu	2.9	14.4	19.5
USNagar	Khatima	VR	Pahmia	Sripur Bicchu	11.0	11.0	14.2
USNagar	Sitarganj	VR	Sitarganj	Nakulia	11.0	11.0	14.2
USNagar	Kashipur	VR	Kashipur	Mahna Khera	11.0	13.0	16.7
USNagar	Bajpur	ODR	Kehsowala	Belpadav	9.0	9.0	12.2

District	Block	Road Type	Road From	Road To	Road Length (km)	Length to be Improved (km)	Cost (Rs million in 2005 prices)
USNagar	Bajpur	VR	Rajpura	Baitkhedi	7.6	17.7	22.8
USNagar	Rudrapur	VR	Lalpur	Nagla	9.6	9.6	12.4
USNagar	Rudrapur	VR	Bhorna Remi Channarpur	Madkota	7.0	7.0	9.0
USNagar	Rudrapur	ODR	Godhpuri Viru	Nagala	3.6	5.0	6.8
USNagar	Rudrapur	VR	Azadnagar	Brolrlpur	7.0	7.0	9.0
USNagar	Gadarpur	VR	Sardarnagar	Banna Kheda	10.0	17.7	22.8
USNagar	Gadarpur	VR	Manunagar Marg	Mehtosh	3.9	5.0	6.4
USNagar	Rudrapur	VR	Simla Pistore	Karia	9.0	9.0	11.5
Uttarkashi	Purola	VR	Purola	Gadoli	12.5	12.5	29.0
Uttarkashi	Chnyalisur	ODR	Silkiyara	Sarot	79.1	77.1	259.1
Uttarkashi	Naugaon	VR	Naugaon	Syuri	12.0	7.0	16.9
Uttarkashi	Chnyalisur	ODR	Dharasu	Jagoth	33.7	18.2	65.6
Uttarkashi	Purola	VR	Purola	Dharoli	12.0	12.0	27.0
Uttarkashi	Dunda	VR	Dhauntari	Thandi	11.0	11.0	23.6
Uttarkashi	Mori	ODR	Moree	Netvad	34.5	34.5	74.3
<b>Total for Project 3</b>						<b>1,843.3</b>	<b>4,765.6</b>

km = kilometers; LVR = light vehicle roads; MDR = major district roads; ODR = other district roads; VR = village roads  
Source: Road Development Plan. November 2005.



## Project 4

District	Block	Road Type	Road From	Road To	Road Length (km)	Length to be Improved (km)	Cost (Rs million in 2005 prices)
Almora	Tarikhet	ODR	Tarikhet	Mangurkhan	10.7	10.7	39.5
Almora	Chaukutiya	ODR	Chokhutiya	Tadagtal	7.0	5.0	16.6
Almora	dwarahat	ODR	Binta	Gagas	13.1	13.1	28.2
Almora	Dhauladevi	ODR	Dholadevi	Kheti	13.1	13.1	39.3
Almora	Bhatroj	ODR	Bhatraungkhan	Ganai	58.0	46.0	99.1
	khan/Bhikiya sen						
Almora	Bhikiyasen	ODR	Daula	Sinar	7.0	7.0	25.2
Almora	Bhikiyasen	ODR	Jalikhhan	Nobada	12.1	12.1	43.6
Almora	sult	ODR	Marchula	Deghat	83.4	83.4	211.6
Almora	Dhauladevi	ODR	Panuvanoola	Vrudh Jageshwar	9.0	9.0	32.4
Almora	Bhikiyasen	VR	Bhikiyasen	Jeena Pani	5.0	5.0	12.1
Almora	Takula	VR	Kapadkhan	Binsar	11.0	11.0	21.1
Bageshwar	Garur	VR	Garur	Dhana Lakhani	5.0	5.0	12.1
Bageshwar	Bageshwar	VR	Bageshwar	Dafot	15.0	15.0	36.3
Bageshwar	Bageshwar	ODR	Josigaon	Paldichhena	22.0	22.0	79.3
Chamoli	Karanprayag	ODR	Sonla-Kothli	Narayan Bagadh	28.5	16.0	54.8
Chamoli	Ghat	ODR	Ghat	Tharali	16.5	16.5	59.5
Chamoli	Dasoli	ODR	Birhi	Gonna	13.0	13.0	28.0
Chamoli	Gaisain	LVR	Sarkot (Sampark Marg)	Unidentified	6.0	6.0	14.5
Chamoli	Dewal	ODR	Gwaldam	Nandkeshri	18.0	18.0	60.5
Chamoli	Dewal	VR	Mundoli	Van	19.5	19.5	47.1
Champawat	Barakot	VR	Lohaghat	Simalkhet	38.1	21.0	50.8
Champawat	Lohaghat	VR	Lohaghat	Mayawati	8.6	8.6	16.5
Champawat	Pati	ODR	Dhunaghat	Reetha		38.0	137.0
Champawat	Pati	VR	Chinkachina	Simalkhet	22.1	22.1	42.4
Dehradun	Chakrata	VR	Kanda	Birnad	8.5	8.5	18.0
Dehradun	Sahaspur	VR	Chharba	Horawala	2.6	16.4	31.4
Dehradun	Doiwala	ODR	Doiwala	Dodhali	9.4	9.4	20.1
Dehradun	Sahaspur	VR	Hathi	Badkala	4.2	5.0	9.6
Dehradun	Vikasnagar	VR	Barotiwalla	Vikasnagar	4.8	8.0	15.3
Dehradun	Sahaspur	VR	Bhaowala	Horawala	11.0	11.0	21.1
Dehradun	Kalsi	LVR	Kotha Band	Dhwairalani	13.5	13.5	32.6
Dehradun	Vikasnagar	LVR	Lagha	Tauli	6.0	6.0	11.5
Haridwar	Narsan	VR	Delhi- Nitipass	Khedajat	7.0	7.0	9.0
Haridwar	Narsan	ODR	Upper Ganga Canal	Limbarhedhi	5.6	5.6	7.6
Haridwar	Bhagwanpur	VR	Jalalpur	Patti Dada	5.0	5.0	6.4
Haridwar	Roorkee	VR	Roorkee	Ikbapur	6.3	6.3	8.1
Haridwar	Bhagwanpur	VR	Biharigadh	Buggawala	9.0	9.0	11.6
Haridwar	Laksar	ODR	Solani	Manglore	6.5	6.5	8.8
Haridwar	Laksar	VR	Sultanpur	Nihandpur	5.0	5.0	6.4
Haridwar	Bhagwanpur	VR	Chudiyala	Bindukhadak	6.4	6.4	8.2
Nainital	Okkhalkhand	LVR	Dalkanya	Lwardoba	11.0	11.0	26.6
Nainital	Bhimtal	LVR	Jungliya Gaon	Kailash	5.0	5.0	12.1
Nainital	Ramgarh	VR	Talla Ramgarh	Ratighat	8.0	8.0	19.3
Nainital	Okkhalkhand	LVR	Similiya	Sanni	9.0	9.0	21.8
Nainital	Haldwani	ODR	Uchhatar	Lamuchaur	6.7	6.7	14.4
Nainital	Ramgarh	VR	Nathuakhan	Jaurasi	14.0	14.0	30.3
Nainital	Okkhalkhand	VR	Padampuri	Kathgodam	35.0	12.0	26.0
Nainital	Ramgarh	VR	Nathuakhan	Pyuda	12.5	12.5	26.7
Nainital	Okkhalkhand	ODR	Mornola	Bhidapani	8.0	8.0	17.2
Nainital	Ramgarh	VR	Mukteshwar	Shitala	9.8	9.8	20.2

District	Block	Road Type	Road From	Road To	Road Length (km)	Length to be Improved (km)	Cost (Rs million in 2005 prices)
Nainital	Ramgarh	ODR	Mukteshwar	Banglow (Approach Road)	6.7	6.7	14.4
Pauri	Kaljikhal	LVR	Bunga	Saknikhet	14.0	9.0	21.8
Pauri	Kaljikhal	LVR	Aneth	Nansu	8.0	8.0	19.3
Pauri	Dwarikhal/Yamkeshwar	ODR	Chelusen	Ghattugad	14.5	14.5	43.6
Pauri	Kaljikhal	LVR	Kaljikhal	Nalai	15.1	5.1	12.3
Pauri	Kaljikhal	LVR	Nauli (Link Road)	Unidentified	5.0	5.0	12.1
Pauri	Rikhanikhal	ODR	Banjadevi	Rikhnikhal	27.0	27.0	89.4
Pauri	Dugadda	VR	Nimbu Choud	Chilarkhal	5.0	5.0	12.1
Pauri	Khirsu	ODR	Khanda	Budhani	18.0	18.0	57.6
Pauri	Ekeshwar	VR	Satpuli	Chauvahakhal	35.3	35.3	67.6
Pauri	Dwarikhal	ODR	Paukhal	Bhambasi	22.0	22.0	77.5
Pauri	Dwarikhal	ODR	Kandakhal	Chelusen	15.5	15.5	55.9
Pauri	Rikhanikhal	VR	Rikhnikhal	Chhanikhal	11.4	11.4	27.6
Pauri	Ekeshwar	LVR	Berikhal	Jandadevi	12.0	12.0	29.0
Pauri	Bironkhal	ODR	Baijrow	Bachuwban	63.0	15.0	54.1
Pauri	Ekeshwar	LVR	Patisen	Ekeshwar	6.8	6.8	16.4
Pauri		ODR	Dugadda	Rathwadhav	75.0	75.0	218.7
Pauri	Kot	LVR	Danda	Umrasu	5.2	5.2	12.5
Pauri		VR	Chargad	Jharpali	7.0	7.0	16.9
Pauri	Rikhanikhal	LVR	Kandalsera	Dwari	6.0	6.0	14.5
Pauri	Rikhanikhal	LVR	Basda	Badkhet	5.0	5.0	12.1
Pauri	Dwarikhal	LVR	Banchuri	Timali	5.5	5.5	13.3
Pauri		ODR	Sungarkhal	Jwalpadevi	35.0	35.0	94.3
Pauri	Jahrikhal/Rikhnikhal	VR	Gumkhal	Lansdowne	9.6	9.6	18.4
Pauri	Yamkeshwar	LVR	Bukandi (Sampark Marg)	Unidentified	9.0	9.0	21.8
Pauri	Yamkeshwar	LVR	Timalyani (Sampark Marg)	Unidentified	9.0	9.0	21.8
Pauri	Khirsu	VR	Budhani	Chamdhar	14.0	14.0	33.8
Pauri		VR	Premnagar	Bubakhal	6.0	6.0	14.5
Pauri	Jahrikhal	LVR	Chametha	Buchchakhal	8.0	8.0	19.3
Pauri	Jahrikhal	LVR	Sauliband	Samkhal	7.0	7.0	16.9
Pauri	Dwarikhal/Yamkeshwar	LVR	Devikhet	Syalana	5.0	5.0	12.1
Pauri	Rikhanikhal	LVR	Part between Dudharkhal—Dharkot Marg	Dharkot	17.1	17.1	41.2
Pauri	Dwarikhal	LVR	Ringaalpani	Gwil	6.5	6.5	15.7
Pauri	Jahrikhal/Rikhanikhal	LVR	Vishgadi	Kamalkhet	5.0	5.0	12.1
Pauri	Khirsu	VR	Kwisu	Sumadi	5.0	5.0	9.6
Pauri	Rikhanikhal	LVR	Timalsain	Baanisain	6.0	6.0	14.5
Pauri	Rikhanikhal	LVR	Badkhet	Timalsain	5.0	5.0	12.1
Pauri	Rikhanikhal	LVR	Khimakhet	Takolikhal	5.0	5.0	12.1
Pauri	Nainidanda	VR	Dhumakot	Nainidanda	13.5	13.5	32.6
Pauri		ODR	Chaubattakhal	Chaurikhal	27.3	27.3	83.9
Pauri		VR	Dungripanth	Chandikhal	15.5	15.5	37.5
Pauri	Yamkeshwar/Dwarikhal	LVR	Jakhnikhal	Vyasghat	10.5	10.5	22.6
Pauri		MDR	Pokhara	Baijrow	36.4	36.4	82.4
Pithoragarh	Munakot	VR	Marhmanley (PWD const)	Ghurchu	15.0	15.0	36.3
Pithoragarh	Munakot	VR	Munkot	Jakhpant	11.0	11.0	26.6
Pithoragarh	Kalichhina	VR	Dewalthal	Kanalichhina	16.0	16.0	36.7

District	Block	Road Type	Road From	Road To	Road Length (km)	Length to be Improved (km)	Cost (Rs million in 2005 prices)
Pithoragarh	Berinag	VR	Satsiling	Singoli	15.0	15.0	31.2
Pithoragarh	Berinag	VR	Guptari	Patal	8.0	8.0	15.3
				Bhuwaneshwar			
Pithoragarh	Munakot	VR	Aicholi	Barawa	23.0	23.0	44.8
Pithoragarh	Didihat	VR	Pamotari	Bhatar	6.0	5.0	12.1
Pithoragarh	Munakot	VR	Nainipatal	Marhmanley	13.9	13.9	26.5
Pithoragarh	Berinag	LVR	Bhatigaon	Quariali	8.0	8.0	19.3
Pithoragarh	Dharchula	VR	Tanakpur	Jauljibi	18.0	18.0	43.5
Pithoragarh	Dharchula	LVR	Tanakpur	Ranthi	8.0	8.0	19.3
Pithoragarh	Dharchula	LVR	Kalika	Basora	5.0	5.0	12.1
Rudrprayag	Ukimath	ODR	Rudraprayag	Pokhri	16.0	16.0	43.2
Rudrprayag	Jakholi	VR	Ratanpur	Jawadi	5.0	5.0	12.1
Rudrprayag	Jakholi	VR	Amkoti	Jawadi	5.0	5.0	12.1
Rudrprayag	Ukimath	VR	Pathalidhar	1 / C Dangi	9.5	9.5	21.5
Rudrprayag	Ukimath	VR	Makku	Paldwadi	7.5	7.5	18.1
Rudrprayag	Ukimath	LVR	Jugasu	Madameshwar	9.0	9.0	21.8
Tehri	Juanpur	LVR	Almas	Bhawan	37.5	37.5	90.7
Tehri	Juanpur	ODR	Nainbagh	Aindi	31.0	19.0	50.4
Tehri	Devprayag	LVR	Rampur	Syampur Bamana	15.0	15.0	36.3
Tehri	Juanpur	ODR	Bareti	Badrigarh	41.2	41.2	96.0
Tehri	Thauldhar	LVR	Suliya	Ramgaon	6.0	6.0	14.5
Tehri	Juanpur	ODR	Raipur	Kumaldra	64.0	64.0	137.9
Tehri	Juanpur	VR	Thatyur	Maoda	5.8	5.8	13.9
Tehri	Thauldhar	LVR	Kilyakhal	Aulani Uppu	8.8	8.8	21.3
Tehri	Thauldhar	LVR	Nagun	Bhawan	8.6	8.6	20.8
Tehri	Juanpur	LVR	Mason	Dwara-Garh	10.0	10.0	24.2
Tehri	Thauldhar	LVR	Kamand	Barwal (Thouldar)	8.8	8.8	24.2
Tehri	Chamba	ODR	Nagni Jardhar	Kuriyal	14.0	7.0	15.1
Tehri	Chamba	ODR	Chamba	Ranichauri	8.0	8.0	17.2
Tehri	Chamba	ODR	Nagni	Bhatusain	7.8	7.8	16.7
Tehri	Chamba	ODR	Nagni	Mathiyan gaon	12.0	12.0	32.0
USNagar	Kashipur	VR	Jaitpur	Barkheda	5.1	7.0	9.0
USNagar	Rudrapur	ODR	Jawahar	Nagala Post	4.6	9.7	13.1
USNagar	Kashipur	VR	Jaitpur	Nurpur	2.2	6.6	8.5
USNagar	Gadarpur	VR	Gadarpur	Gulabhaj	9.6	9.6	12.4
USNagar	Gadarpur	VR	Masit	Sakainiya	6.6	6.6	8.5
USNagar	Jaspur	ODR	Jaspur	Dhampur	12.4	12.4	16.7
USNagar	Jaspur	ODR	Jaspur	Amangarh	5.3	5.3	7.1
USNagar	Bajpur	VR	Sardarnagar	Banna Kheda	16.7	16.7	21.5
USNagar	Gadarpur	VR	Gularbhaj	Roshappur	5.5	5.5	7.1
USNagar	Gadarpur	VR	Gadarpur	Milakkhanam	9.0	9.0	11.6
USNagar	Jaspur	VR	Jaspur	Kaliyabala	5.0	5.0	6.4
USNagar	Jaspur	VR	Angadpur	Dharampur	6.3	6.3	8.1
USNagar	Jaspur	VR	Shyamnagar	Bawarkheda	6.4	6.4	8.2
Uttarkashi	Purola	VR	Purola	Kufara	5.0	5.0	11.1
Uttarkashi	Naugaon	VR	Rajstar	Rajgarhi	11.6	11.6	22.3
Uttarkashi	Naugaon	VR	Rajgadi	Sarnaul	7.0	6.0	14.5
Uttarkashi	Dunda	VR	Gyansu	Uprikot	6.0	6.0	13.5
Uttarkashi	Mori	VR	Arakot	Balcha	14.0	14.0	27.8
Uttarkashi	Dunda	VR	Nalupani	Syalna	10.0	10.0	24.2
Uttarkashi	Mori	VR	Maneri	Jakhol	10.7	10.7	25.9
Uttarkashi	Mori	VR	Mori	Khunigad	11.0	11.0	21.1
Uttarkashi	Purola	LVR	Dhukana	Chhadakhadda	6.0	6.0	14.5
Uttarkashi	Bhatwari	VR	Tekhla	Mahidanda	12.8	12.8	24.4
Uttarkashi	Chnyalisur	VR	Banchora	Bangaon	15.0	15.0	36.3
Uttarkashi	Bhatwari	VR	Gangori	Deodital	10.5	10.5	20.1
Uttarkashi	Bhatwari	VR	Bhatwadi	Raithal		10.0	22.2
Uttarkashi	Naugaon	LVR	Kandi	Diyadi	7.8	7.8	18.7

District	Block	Road Type	Road From	Road To	Road Length (km)	Length to be Improved (km)	Cost (Rs million in 2005 prices)
Uttarkashi	Purolla	VR	Khavli	Gundiyatgaon	10.0	8.0	15.6
Uttarkashi	Bhatwari	VR	Dwari	Jokhal	10.0	10.0	22.7
Uttarkashi	Bhatwari	LVR	Bhatwadi	Gaursali	7.0	7.0	15.9
<b>Total for Project 4</b>						<b>1,960.3</b>	<b>4,727.8</b>

km = kilometer; LVR = light vehicle roads; MDR = major district roads; ODR = other district roads; VR = village roads

Source: Road Development Plan. November 2005.

## DETAILED COST ESTIMATE

**Table A5.1: Detailed Cost Estimate by Expenditure Category for the Investment Program**

Investment Program	Foreign	Rs million Local	Total	Foreign	\$ million Local	Total	% of Base Cost
<b>A. Investment Costs<sup>a</sup></b>							
1. Resettlement		17	17		0.5	0.5	0.1
2. Civil Works <sup>b</sup>		31,163	31,163		695.5	695.5	89.5
3. Consulting Services – Design		591	591		13.5	13.5	1.7
4. Consulting Services – Construction Supervision		1,257	1,257		28.0	28.0	3.6
5. Environmental Mitigation and Monitoring		14	14		0.5	0.5	0.1
6. Taxes and Duties		1,435	1,435		32.0	32.0	4.1
<b>Subtotal A</b>		<b>34,477</b>	<b>34,477</b>		<b>770.0</b>	<b>770.0</b>	<b>99.1</b>
<b>B. Project Management and Administration</b>							
1. Project Management Unit		31	31		1.0	1.0	0.1
2. Project Implementation Unit		135	135		3.0	3.0	0.4
3. Program Support Consultant	49	18	67	1.1	0.4	1.5	0.2
<b>Subtotal B</b>	<b>49</b>	<b>184</b>	<b>233</b>	<b>1.1</b>	<b>4.4</b>	<b>5.5</b>	<b>0.7</b>
<b>C. Other Program Components</b>							
1. Infrastructure Management Component	18	49	67	0.4	1.1	1.5	0.2
<b>Subtotal C</b>	<b>18</b>	<b>49</b>	<b>67</b>	<b>0.4</b>	<b>1.1</b>	<b>1.5</b>	<b>0.2</b>
<b>Total Base Cost</b>	<b>67</b>	<b>34,710</b>	<b>34,777</b>	<b>1.5</b>	<b>775.5</b>	<b>777.0</b>	<b>100</b>
<b>D. Contingencies</b>							
1. Physical Contingency <sup>c</sup>		887	887		20.0	20.0	2.6
2. Financial Contingency <sup>d</sup>		485	485		11.0	11.0	1.4
<b>Subtotal D</b>		<b>1,372</b>	<b>1,372</b>		<b>31.0</b>	<b>31.0</b>	<b>4.0</b>
<b>E. Interest During Construction<sup>e</sup></b>	953		953	22.0		22.0	2.8
<b>Total Investment Program Cost</b>	<b>1,020</b>	<b>36,082</b>	<b>37,102</b>	<b>23.5</b>	<b>806.5</b>	<b>830</b>	<b>106.8</b>

<sup>a</sup> costs given in current prices at the start of each project

<sup>b</sup> includes cost of performance based maintenance for 3 years

<sup>c</sup> computed at 3% if civil works and consulting services cost

<sup>d</sup> computed using 4% annual inflation over implementation period of each project

<sup>e</sup> interest taken as London interbank offered rate floating rate of 5.16%, plus a 0.6% lending spread

Source: ADB estimates.

Table A5.2: Detailed Cost Estimate by Expenditure Category for Project 1

Project 1	Foreign	Rs million Local	Total	Foreign	\$ million Local	Total	% of Base Cost
<b>A. Investment Costs<sup>a</sup></b>							
1. Resettlement		1	1		0.1	0.1	0.1
2. Civil Works <sup>b</sup>		2,606	2,606		58.1	58.1	85.1
3. Consulting Services – Design		51	51		1.1	1.1	1.7
4. Consulting Services – Construction Supervision		130	130		2.9	2.9	4.2
5. Environmental Mitigation and Monitoring		1	1		0.1	0.1	0.1
6. Taxes and Duties		120	120		2.7	2.7	3.9
<b>Subtotal A</b>		<b>2,909</b>	<b>2,909</b>		<b>65.0</b>	<b>65.0</b>	<b>95.2</b>
<b>B. Project Management and Administration</b>							
1. Project Management Unit		9	9		0.2	0.2	0.3
2. Project Implementation Unit		26	26		0.6	0.6	0.8
3. Program Support Consultant		45	45		1.0	1.0	1.5
<b>Subtotal B</b>		<b>80</b>	<b>80</b>		<b>1.8</b>	<b>1.8</b>	<b>2.6</b>
<b>C. Other Program Components</b>							
1. Infrastructure Management Component	18	49	67	1.1	0.4	1.5	2.2
<b>Subtotal C</b>	<b>18</b>	<b>49</b>	<b>67</b>	<b>1.1</b>	<b>0.4</b>	<b>1.5</b>	<b>2.2</b>
<b>Total Base Cost</b>	<b>18</b>	<b>3,038</b>	<b>3,056</b>	<b>1.1</b>	<b>67.2</b>	<b>68.3</b>	<b>100.0</b>
<b>D. Contingencies</b>							
1. Physical Contingency <sup>c</sup>		70	70		1.6	1.6	2.3
2. Financial Contingency <sup>d</sup>		105	105		2.3	2.3	3.4
<b>Subtotal D</b>		<b>175</b>	<b>175</b>	<b>0</b>	<b>3.9</b>	<b>3.9</b>	<b>6.1</b>
<b>E. Interest During Construction<sup>e</sup></b>	<b>70</b>		<b>70</b>	<b>1.8</b>		<b>1.8</b>	<b>2.6</b>
<b>Total Investment Program Cost</b>	<b>88</b>	<b>3,213</b>	<b>3,301</b>	<b>2.9</b>	<b>71.1</b>	<b>74.0</b>	<b>108.7</b>

<sup>a</sup> costs given in current prices at the start of each project

<sup>b</sup> includes cost of performance based maintenance for 3 years

<sup>c</sup> computed at 3% if civil works and consulting services cost

<sup>d</sup> computed using 4% annual inflation over implementation period of each project

<sup>e</sup> interest taken as London interbank offered rate floating rate of 5.16%, plus a 0.6% lending spread

Source: ADB estimates.

**Table A5.3: Detailed Cost Estimate by Financier for the Investment Project**  
(\$ million)

Investment Program	ADB	India	Total
<b>A. Investment Costs<sup>a</sup></b>			
1. Resettlement	0	0.5	0.5
2. Civil Works <sup>b</sup>	519.5	176.0	695.5
3. Consulting Services – Design	0	13.5	13.5
4. Consulting Services – Construction Supervision	28.0	0	28.0
5. Environmental Mitigation and Monitoring	0	0.5	0.5
6. Taxes and Duties	0	32.0	32.0
<b>Subtotal A</b>	<b>547.5</b>	<b>222.5</b>	<b>770.0</b>
<b>B. Project Management and Administration</b>			
1. Project Management Unit	0	1.0	1.0
2. Project Implementation Unit	0	3.0	3.0
3. Program Support Consultant	1.0	0.5	1.5
<b>Subtotal B</b>	<b>1.0</b>	<b>4.5</b>	<b>5.5</b>
<b>C. Other Program Components</b>			
1. Infrastructure Management Component	1.5	0	1.5
<b>Subtotal C</b>	<b>1.5</b>	<b>0.0</b>	<b>1.5</b>
<b>Total Base Cost</b>	<b>550.0</b>	<b>227.0</b>	<b>777.0</b>
<b>D. Contingencies</b>			
1. Physical Contingency <sup>c</sup>	0	20.0	20.0
2. Financial Contingency <sup>d</sup>	0	11.0	11.0
<b>Subtotal D</b>	<b>0</b>	<b>31.0</b>	<b>31.0</b>
<b>E. Interest During Construction<sup>e</sup></b>	<b>0</b>	<b>22.0</b>	<b>22.0</b>
<b>Total Investment Program Cost</b>	<b>550.0</b>	<b>280.0</b>	<b>830.0</b>
<b>% Total Investment Program Cost</b>	<b>66%</b>	<b>34%</b>	<b>100%</b>

<sup>a</sup> costs given in current prices at the start of each project

<sup>b</sup> includes cost of performance based maintenance for 3 years

<sup>c</sup> computed at 3% if civil works and consulting services cost

<sup>d</sup> computed using 4% annual inflation over implementation period of each project

<sup>e</sup> interest taken as London interbank offered rate floating rate of 5.16%, plus a 0.6% lending spread

Source: ADB estimates.

**Table A5.4: Detailed Cost Estimate by Financier for Project 1**  
(\$ million)

<b>Investment Program</b>	<b>ADB</b>	<b>India</b>	<b>Total</b>
<b>A. Investment Costs<sup>a</sup></b>			
1. Resettlement	0	0.1	0.1
2. Civil Works <sup>b</sup>	44.6	13.5	58.1
3. Consulting Services – Design	0	1.1	1.1
4. Consulting Services – Construction Supervision	2.9	0	2.9
5. Environmental Mitigation and Monitoring	0	0.1	0.1
6. Taxes and Duties	0	2.7	2.7
<b>Subtotal A</b>	<b>47.5</b>	<b>17.5</b>	<b>65.0</b>
<b>B. Project Management and Administration</b>			
1. Project Management Unit	0	0.2	0.2
2. Project Implementation Unit	0	0.6	0.6
3. Program Support Consultant	1.0	0	1.0
<b>Subtotal B</b>	<b>1.0</b>	<b>0.8</b>	<b>1.8</b>
<b>C. Other Program Components</b>			
1. Infrastructure Management Component	1.5	0	1.5
<b>Subtotal C</b>	<b>1.5</b>	<b>0</b>	<b>1.5</b>
<b>Total Base Cost</b>	<b>50.0</b>	<b>18.3</b>	<b>68.3</b>
<b>D. Contingencies</b>			
1. Physical Contingency <sup>c</sup>	0	1.6	1.6
2. Financial Contingency <sup>d</sup>	0	2.3	2.3
<b>Subtotal D</b>	<b>0</b>	<b>3.9</b>	<b>3.9</b>
<b>E. Interest During Construction<sup>e</sup></b>	<b>0</b>	<b>1.8</b>	<b>1.8</b>
<b>Total Investment Program Cost</b>	<b>50.0</b>	<b>24.0</b>	<b>74.0</b>
<b>% Total Investment Program Cost</b>	<b>68%</b>	<b>32%</b>	<b>100%</b>

<sup>a</sup> costs given in current prices at the start of each project

<sup>b</sup> includes cost of performance based maintenance for 3 years

<sup>c</sup> computed at 3% if civil works and consulting services cost

<sup>d</sup> computed using 4% annual inflation over implementation period of each project

<sup>e</sup> interest taken as London interbank offered rate floating rate of 5.16%, plus a 0.6% lending spread

Source: ADB estimates.



# INDICATIVE IMPLEMENTATION SCHEDULE

Activity	2006				2007				2008				2009				2010				2011				2012				2013				2014			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Project 1																																				
Project 1 preparation (by PWD)																																				
Works Procurement																																				
Social and Environmental Safeguards																																				
Consultant Procurement																																				
Program Support Consultancy																																				
Infrastructure Management																																				
Consultancy																																				
Supervision Consultant - Procurement																																				
Improvement Works - Maintenance																																				
Selection of Roads for Project 2																																				
Project 2																																				
Design Consultant Procurement																																				
Subproject design (by PWD)																																				
Works Procurement																																				
Social and Environmental Safeguards																																				
Improvement Works																																				
Maintenance																																				
Selection of Roads for Project 3																																				
Project 3																																				
Subproject Design																																				
Works Procurement																																				
Social and Environmental Safeguards																																				
Improvement Works																																				
Maintenance																																				
Selection of Roads for Project 4																																				
Project 4																																				
Subproject Design																																				
Works Procurement																																				
Social and Environmental Safeguards																																				
Improvement Works																																				

## PROCUREMENT PLAN

### I. Program Information

Country	India
Name of Borrower	India
Project Name	Uttaranchal State-Road Investment Program
Loan or TA Reference	
Date of Effectiveness of Procurement Plan	30 May 2006 (on approval of advance contracting at first management review meeting)
Amount	Total estimated cost of the Investment Program is \$830 million, which is financed partly from a Multitranchise Financing Facility (MFF) from Asian Development Bank (ADB). The maximum amount available under the MFF is \$550 million Total estimated cost of Project 1 is \$74 million
Of Which Committed	\$0
Executing Agency	Public Works Department of the State Government of Uttaranchal
Approval Date of Original Procurement Plan	This is the first Procurement Plan
Approval of Most Recent Procurement Plan	
Publication for Local Advertisements <sup>1</sup>	State and national newspapers
Period Covered by This Plan	Period up to 31 December 2007, covering procurement of works and consulting services financed from the MFF.

### A. Procurement Thresholds: Goods, Works, and Related Services

Procurement Method	To Be Used Above or Below (\$)
ICB Works	\$10 million and above
LIB Works	less than \$10 million
NCB Works (footnote 1)	less than \$10 million

ICB = international competitive bidding; LIB = limited international bidding; NCB = national competitive bidding

<sup>1</sup> General procurement notice, invitations to bid, and calls for expression of interest.

**B. Procurement Thresholds: Consulting Services**

<b>Procurement Method</b>	<b>To Be Used Above or Below (\$)</b>
QCBS	\$200,000 and above
CQS	less than \$200,000
LCS	less than \$100,000
<b>Alternative Methods</b>	
National consulting companies and individuals may be engaged in accordance with the Asian Development Bank guidelines to provide short-term specialist consulting support to the Public Works Department's Project Management Unit.	

QCBS = quality and cost-based selection; CQS = consultants' qualifications selection; LCS = least cost selection

**II. Project 1 Information:****A. List of Contract Packages in Excess of \$100,000: Goods, Works, and Consulting Services**

<b>Ref</b>	<b>Contract Description</b>	<b>Estimated Cost</b>	<b>Procurement Method</b>	<b>Prior Review (Yes or No)</b>	<b>Comments</b>
1.	Eight works contract packages for improvement and 3-year performance-based maintenance of state roads, as shown in Table 1 of this Procurement Plan	Individual contract packages between \$3.8 million and below \$10 million	NCB	Yes  (prior review completed)	Maintenance requirements and standards to be prepared in reference to guidelines and documents acceptable to ADB
2.	Three packages for consulting services for construction supervision	Total value of packages is \$2.9 million	QCBS with STP	Yes  As per Para 2.3 of ADB's <i>Guidelines on the Use of Consultants</i> (April 2006) as it applies to proven borrowers.	The shortlist might comprise entirely national consultants (firms registered or incorporated in India)

Ref	Contract Description	Estimated Cost	Procurement Method	Prior Review (Yes of No)	Comments
3.	One package for consulting services for infrastructure management component (1 contract)	\$1.5 million	QCBS with STP	Yes  As per Para 2.3 of ADB's <i>Guidelines on the Use of Consultants</i> (April 2006) as it applies to proven borrowers.	
4.	Consulting services for program support consultants	\$1.0 million	QCBS with STP or CQS	No	May engage individual consultants or a firm to provide part of the services at different times
5.	Consulting services for companies and individuals providing short-term specialist support to PMU	\$50,000	CQS for companies	No	NGOs and other consultants for monitoring social and environmental safeguards will be financed by PWD

CQS = consultants' qualifications selection; NCB = national competitive bidding; STP = standard technical proposal; QCBS = quality and cost-based selection

Table A7.1: Details of Procurement Packages

Zone	Contract Package No.	Road No.	Road Name	Road Category	Length (km)	2005 AADT	2005 IRI	Cost in Rs (million)	Improvement (\$ million)	Maintenance (\$ million)	Total Cost (\$ million)
Garhwal	1	1.1	Kuwa–Kafnol–Rarhi	ODR	48	108	10				
	1	1.2	Naugaon–Purola	ODR	8	561	8				
	1	2.2	Kalsi–Chakrata	MDR	42	325	10				
<b>Subtotal</b>					<b>107</b>	<b>331</b>	<b>10</b>	<b>320</b>	<b>6.6</b>	<b>0.3</b>	<b>6.9</b>
	2	4.1	Fatehpur–Lansdowne	ODR	22	398	6				
	2	4.2	Pathrakhkal–Gethichheda–Dodai–Umrasu	ODR	18	152	8				
	2	4.3	Pauri–Khirsu–Srinigar	ODR	18	207	10				
<b>Subtotal</b>					<b>58</b>	<b>252</b>	<b>8</b>	<b>200</b>	<b>4.1</b>	<b>0.2</b>	<b>4.3</b>
	3	5.1	Nandprayag–Ghat Motor Road	ODR	18	459	8				
	3	5.2	Rudraprayag–Pokri–Karanpryag	ODR	15	195	8				
	3	6.1	Jakoli–Guptkashi	ODR	13	141	8				
<b>Subtotal</b>					<b>46</b>	<b>265</b>	<b>8</b>	<b>190</b>	<b>3.9</b>	<b>0.2</b>	<b>4.1</b>
Kumaon	4	1	Mukandpur–Paigadhakia–Dhakiaa–Gulabo	ODR	25	584	11				
	4	2	Jaipur–Dhatoli–Kharmasha	ODR	11	584	9				
	4	3	Zafarpur–Gularbhoj	ODR	14	628	7				
<b>Subtotal</b>					<b>50</b>	<b>599</b>	<b>9</b>	<b>310</b>	<b>6.4</b>	<b>0.3</b>	<b>6.7</b>
	5	4	Betalghat–Bhatrojkhan	ODR	17	237	9				
	5	5	Nathuakhan–Suyalbadi	VR	29	382	11				
	5	6	Raniket–Mohan	MDR	70	664	10				
<b>Subtotal</b>					<b>116</b>	<b>428</b>	<b>10</b>	<b>440</b>	<b>9.3</b>	<b>0.3</b>	<b>9.6</b>
<b>Subtotal</b>	6	7	Almora–Bageshwar	SH	73	595	12				
					<b>73</b>	<b>595</b>	<b>12</b>	<b>380</b>	<b>7.9</b>	<b>0.3</b>	<b>8.2</b>
	7	8	Barechhina–Sheraghat (Berinag–Almora Section)	SH		42	523	11			
	7	9	Udiyari–Bend–Kanda (Berinag–Bageshwar Section)	MDR	26	270	11				
	7	10	Thal–Udyari Bend (Berinag)	SH	22	523	12				
<b>Subtotal</b>					<b>90</b>	<b>439</b>	<b>11</b>	<b>438</b>	<b>9.2</b>	<b>0.5</b>	<b>9.7</b>
	8	11	Pulai–Dhola–Chamdeval Siling Motor Road	VR	7	187	8				
	8	12	Lohaghat–Choumel Motor Road	VR	8	187	8				
	8	13	Tuligarh–Bhairav Mandir	VR	6	187	9				
<b>Subtotal</b>	8	14	Kakrali–Thuligarh	VR	13	187	9				
					<b>33</b>	<b>187</b>	<b>8</b>	<b>345</b>	<b>7.7</b>	<b>0.7</b>	<b>8.4</b>
<b>Total</b>					<b>573</b>	<b>387</b>	<b>9</b>	<b>2,623</b>	<b>55.1</b>	<b>2.8</b>	<b>57.9</b>

AADT = annual average daily traffic; IRI = international roughness index; km = kilometers; LVR = light vehicle roads; MDR = major district roads; ODR = other district roads; VR = village roads

Source: ADB estimates.

## **ENVIRONMENTAL IMPACT ASSESSMENT AND REVIEW FRAMEWORK**

### **A. Environmental Criteria for Road Selection**

1. Roads to be improved under the Investment Program shall
  - (i) be selected from the priority roads listed in Appendix 4, or the prioritized list in the Road Development Plan at the time of selection; and
  - (ii) have minimal, if any, alignments through designated wildlife sanctuaries, national parks, areas that are of international significance (e.g., protected wetland designated by the Wetland Convention), or cultural heritage sites designated by United Nations Educational Scientific and Cultural Organization (UNESCO).

### **B. Environmental Assessment Requirements**

2. The Government's environmental impact assessment requirements are based on the Environment (Protection) Act, 1986; the Environmental Impact Assessment Notification, 1994 and its amendment in 1997; the Ministry of Environment and Forest's (MOEF) Environmental Impact Assessment Guidelines for Rail, Road & Highways Projects, 1989; and the Indian Roads Congress Guidelines for Environmental Impacts Assessment (IRC:104-1988) of highway projects. In addition, the road improvement and rehabilitation activities require also to comply with Forest (Conservation) Act as amended in 1980; Forest (Conservation) Rules, 1981; Wildlife (Protection) Act 1972; Water (Prevention and Control of Pollution) Act 1974 (Amended 1988); Air (Prevention and Control of Pollution) Act 1981 (As Amended in 1987); and Noise Pollution (Regulation and Control) Rules, 2000.

3. These acts and regulations (para. 2) require
  - (i) clearance from MOEF in the form of an approved environmental impact assessment (EIA) report for all improvements and rehabilitation activities within the purview of environmental assessment notification and located in the protected areas and reserve forest areas;
  - (ii) clearance from the Uttaranchal Department of Forests to carry out the work within forest areas, to use forest land for non-forest purposes, and to fell roadside trees; the department also requires that cutting of trees be compensated by compensatory afforestation;
  - (iii) a no-objection certificate (consent to establish and consent to operate) from state Pollution Control Board before establishment and placement of hot-mix plants, quarrying and crushers, and batch mixing plants; and
  - (iv) permission from Uttaranchal Ground Water Board to extract water for construction purposes.
4. Based on the Government and Asian Development Bank's (ADB) *Environmental Policy* (2002), the Uttaranchal Public Works Department (PWD) is expected to undertake the following for the roads in the subsequent years:
  - (i) Perform an environmental assessment of each road depending on its potential impacts. Based on these potential impacts, each road must be classified in accordance with the Government's and ADB's environmental assessment guidelines, using the ADB's rapid environmental assessment.

- (ii) Perform an EIA and prepare an environmental management and monitoring plan (EMP) for each road in category A. An initial environmental examination (IEE) and an EMP should be prepared for all other roads or roads categorized as “B”. A road will be categorized as A if
  - (a) an in-depth assessment of the impacts and detailed studies are needed to prepare mitigation measures;
  - (b) the alignments pass through or fall within 100 meters of ecologically sensitive areas, particularly designated wildlife sanctuaries, national parks, other sanctuaries, botanical garden, or area of international significance (e.g., protected wetland designated by the Wetland Convention); or within 300 meters of the coastline or pass through any cultural heritage sites designated by UNESCO; and
  - (c) a bypass or realignment is required to avoid ecologically sensitive areas (mountainous, forested area, wetlands, nearby estuarine, or other important ecological areas).
- (iii) For village roads and light vehicle roads to be improved as part of Investment Program, the IEE will be carried out using the IEE checklist and the standard EMP that have been used by Pradhan Mantri Gram Sadak Yojana (PMGSY).

## **C. Environmental Assessment Review Procedures and Authorities’ Responsibilities**

### **1. PWD’s Responsibilities**

#### **5. PWD will**

- (i) prepare environmental screening checklist and classify roads in consultation with Forest Department and/or Wildlife Conservation Department;
- (ii) based on the environmental classification of the roads, prepare terms of reference (TOR) to conduct IEEs or EIAs;
- (iii) engage environmental specialists to prepare the necessary IEE or EIA reports, including EMPs and summary EIAs for public disclosure;
- (iv) undertake initial review of the IEE and EMP, or EIAs, summary EIA, and EMP reports, to ensure compliance with the Government’s and ADB’s requirement
- (v) obtain necessary permits (e.g., environmental clearance, forest clearance, and water board clearance) from relevant government agencies before starting civil works on the roads;
- (vi) submit to ADB the IEE, or EIA and summary EIA, including EMP reports and all clearance certificates and conditionalities from the relevant government agencies for ADB’s approval before starting road implementation;
- (vii) ensure that the EMPs, which include mitigation measures required during construction, are included in the bidding documents;
- (viii) ensure that contractors have access to the EIA, or IEE reports and EMP roads for the relevant roads;
- (ix) ensure that contractors understand their responsibilities to mitigate environmental problems associated with their construction activities;
- (x) ensure that the EMP and the accompanying environmental monitoring plan are properly implemented;

- (xi) in case unpredicted environmental impacts occur during project implementation, prepare and implement an environmental emergency program in consultation with relevant government agency and ADB, if necessary;
- (xii) in case a road needs to be realigned during program implementation, review the environmental classification and revise accordingly; identify whether supplementary IEE or EIA study is required; and, if required, prepare TOR for undertaking a supplementary IEE or EIA, and require an environment specialist to carry out the study; and
- (xiii) submit annual reports on performance of EMPs and details of environmental emergency programs (if any) to the state Pollution Board, MOEF, and ADB.

## **2. ADB Responsibilities**

### **6. ADB will**

- (i) review IEE and/or EIA reports, which will be the bases for issuing road approvals;
- (ii) review summary EIA reports, and disclose them through ADB's Web site;
- (iii) review the performance of the EMP implementation, and conduct due diligence analyses as part of overall project review mission; and
- (iv) if required, provide assistance to PWD in carrying out its responsibilities to implement the Investment Program.

## **D. Compliance with the ADB's Environmental Policy—Due Diligence**

7. ADB must be given access to undertake environmental due diligence for all roads, if needed. However, PWD has the main responsibility for undertaking environmental due diligence and monitoring the implementation of environmental mitigation measures for all roads. The due diligence report, as well as monitoring implementation of the environmental management plan as part of the annual report, needs to be documented systematically.

## **E. Public Disclosure**

8. PWD is responsible for ensuring that all environmental assessment documentation, including the environmental due diligence and monitoring reports, are kept properly and systematically as part of the PWD project record.

9. All environmental documents are subject to public disclosure. As such, these documents should be made available to public, if requested

10. For a category A road, the summary EIA needs to be disclosed to the public through ADB, 120 days before beginning approval of the roads.

## **F. Institutional Arrangements**

11. The executive engineers in PWD divisional offices have been assigned to process environment-related clearances for all projects within PWD. The chief engineer at the department level and the division office at the district level will monitor execution of PWD's projects. However, PWD's activities have specific guidelines or instructions on managing environmental impacts. Therefore, with ADB's requirement to mainstream environmental and social concerns in its development program, PWD needs to institutionalize such concerns.



12. To implement the Investment Program, the project management unit (PMU) at the department level has been established with staff seconded from PWD. Environmental and social development experts will support the PMU in implementing this environmental assessment and review framework (EARF). These experts will assist the project implementation units (PIU), which will be responsible for managing the roads. PIU executive engineers, who will be trained on environmental management by the PMU specialists, will monitor implementation of the environmental management plan in the field. Nine PIUs are expected to be established.

13. Cost of conducting training, undertaking the environmental monitoring, hiring environmental specialists, and implementing the EARF will be financed under the Uttarakhand State-Road Investment Program.

## SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

<b>A. Linkages to the Country Poverty Analysis</b>			
<b>Is the sector identified as a national priority in country poverty analysis?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is the sector identified as a national priority in country poverty partnership agreement?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Contribution of the sector or subsector to reduce poverty in India:</b> <p>The proposed Uttaranchal State-Road Investment Program is a part of the state's infrastructure vision, which covers improvement of the existing road network and provision of all-weather accessibility to rural areas. The Investment Program will help Uttaranchal Public Works Department (PWD) to develop their road network, as well as to build the capacity of road sector institutions at the state level and contribute to effective and efficient management of the road assets. About 10,800 kilometers of project roads, including state highways, major district roads, other district roads, and village roads, were selected because they offer the best opportunities to improve road network connectivity within the states, and provide a connection between the lesser roads and the national highway network. The Investment Program will be implemented as seven projects, which have been programmed according to the level of urgency and importance attached to the roads selected for improvement. Pre-construction work on about 570 kilometers of the selected roads has been completed, and will be implemented under the first project (Project 1). The road sections to be improved in Projects 5–7 will be reprioritized and designed during implementation. The Investment Program will benefit directly the poor living in the region, as road transport is the primary—and often the only—form of transport. Thus, an efficient road network linking villages, towns, and cities will provide stronger links between remote and poor regions and more developed markets. Infrastructure development encourages other development initiatives, which together considerably stimulate economic growth. Thus, the investment is expected to improve the socioeconomic situation significantly, and enhance poverty reduction.</p>			
<b>B. Poverty Analysis</b>		<b>Targeting Classification: General Intervention</b>	
<p>The project roads are spread across all the 13 districts of Uttaranchal. The planning commission estimates that more than 35% of the state's population lives in poverty. The sample socioeconomic survey carried out along the roads to be improved under Project 1 indicates that 3 to 6% of the households lived in poverty. However, the levels of poverty are expected to be much higher in the interior villages of the districts. As a new state, Uttaranchal does not have much data available on the extent of poverty in the 13 hill districts. However, estimates show that the people are surviving by depending on remittances (about \$72.7 million) yearly from migrant workers all over India. The population in the Project 1 catchment area consists largely of rural people (75%), the majority of whom are farmers and unskilled laborers. During the social assessment along the road sections, 4–11% were found to be involved in businesses, while 19–35% of the households were engaged in agricultural activities. On average, women spend 4 hours on household activities and 5 hours on agricultural activities per day, and have to travel 10–12 kilometers (km) a day. The average distance that households travel to access the nearest health facilities ranged from 3 to 6 km. In most of the districts, the survey reported, people have to travel 6–7 km to the nearest bus stop to use local transport. The frequency of local transport is very poor. In most cases, only one government bus is available per day, forcing people to use other forms of informal local transport services. In cases of emergency, people depend on these private transport services, which cost more.</p> <p>The Investment Program will benefit directly approximately 3.5 million people living in the villages along the roads. Vehicle ownership among the residents of adjoining areas is low, and generally limited to two-wheelers. As a result, significant operating cost savings are unlikely to be passed on to local road users. However, users will benefit from time savings. The government is involved heavily in the operation of public transport services, with the state governments effectively setting fares. In the hill areas, informal passenger transport services provided by light vehicle owners, which are largely unregulated, are thriving. Freight services are more competitive, with a large proportion of these benefits likely to be passed on to the community through higher service frequencies. As the Investment Program will improve road surfaces, widen some sections within the existing rights-of-way, and replace bridges, it will reduce travel times and lower operating vehicle costs. With improved roads and better connectivity, farmers will be able to transport agricultural products and perishables to neighboring markets more easily. The Investment Program will enable reliable access to social services, particularly health care services and education facilities. It also will benefit those who use the project roads to access district town centers, and the national highway network. People will benefit from lower transport costs, lowering consumer prices and inducing economic and social development. The Investment Program also will generate significant employment opportunities for skilled and unskilled labor during construction. Unskilled labor (males and females) will be employed directly in road construction and indirectly by providing materials</p>			

and services to the construction and maintenance activities. Project 1 will generate about 912,600 person-days of work for unskilled workers, while the Investment Program will generate 8.4 million person days. The poverty impact ratio of Project 1 is 0.30.

The improved road network also will improve links between the village communities and urban centers, which provide wider marketing opportunities for agricultural and other indigenous products. People will have wider options in buying and selling their commodities. Small and petty village traders may tap bigger markets, transport produce faster, and receive higher prices, instead of depending solely on local markets and intermediaries. Road networks not only link the village communities to better markets, but also open up wider work opportunities in distant places. People can shuttle to distant work sites and towns for construction, factory, business, and domestic jobs. When transportation is efficient, people can engage in regular work without migrating permanently or seasonally. Improved roads also will encourage urban entrepreneurs to invest in commercial farming and industrial activities in remote areas. Villagers may create new business partnerships that, in turn, develop their entrepreneurship skills. With more money flowing to the villages, more work opportunities will be generated through multiplier effect and backward-forward links in the economy. People will have opportunities to open up tea stalls, hotels, garages, and rest houses, which would generate skilled and unskilled jobs. With the improved networking and cash management, the villagers can tap into new institutional credit and financial services. The scope for better management of public schemes also will increase, which will help people gain new knowledge on improved farming, land development, and development and maintenance of natural resources through the formation of economic and social development committees. Thus, direct benefits (access to social services, market, credit facilities, new technology, etc.) and indirect benefits (employment) of the Investment Program will help reduce poverty and improve the quality of life of people.

### C. Participation Process

**Is there a stakeholder analysis?**

☒ Yes

☐ No

**Is there a participation strategy?**

☒ Yes

☐ No

As part of Project 1 preparation, consultations were held at the level of primary and secondary stakeholders, including directly affected people, Executing Agency, local administration departments in the Project's area of influence, and nongovernment organizations. Issues related to the proposed project development and various activities involved in the planning and implementation were discussed. At the field level, 37 focus group discussions were held in subproject areas under Project 1 to ensure a comprehensive perspective on the Project and its impacts. These discussions involved village administrative officers, men, women, farmers, business communities, concerned government departments, and disadvantaged groups. The main objective of these discussions was to ascertain (i) community response to the Project, (ii) community needs and demands from the Project, (iii) an estimate of losses that the community would suffer, and (iv) steps to mitigate those losses. The directly affected populations were consulted to understand their concerns regarding the road construction, and to gather suggestions on the types of mitigation measures that should be considered to address the envisaged impacts.

### D. Gender Development

#### Strategy to maximize impacts on women:

Women in the region are involved largely in household work, cultivation, and other agricultural activities, spending 12–17 hours per day to carry out these activities. The reasons for their road use ranges from day-to-day household activities to economic activities, such as agriculture and marketing, for which they travel up to 10–12 km per day. The improvement in road conditions and improved connectivity of village roads to the main network will encourage better transport services, thereby improving access for women and children to social services, markets, workplace, higher levels of schooling, and better health facilities. In addition to the improvement in transport services, travel time savings due to improved road conditions will allow them more time to make frequent visits to health clinics, access marketing and credit facilities, and seek better employment opportunities. The project design also includes provision for bus stops, rest sheds with drinking water facilities, and public toilets, which also will benefit women. During construction, women will have the opportunity to gain employment in construction and associated activities. Along the road corridor, women normally are involved in roadside activities, such as running small eateries, tea stalls, and pan shops, etc. Thus, with the envisaged colonies for construction workers and contractors, petty businesses—e.g., tea or food stalls, and groceries, etc.—will flourish. This will benefit women by improving their income-earning capacities. In Project 1, no households headed by women will be adversely affected. However, adequate provision is included in the resettlement framework to mitigate risks and reduce the hardship of women in subsequent projects. During the Investment Program implementation, women will receive preferential

treatment for employment in civil works, and will receive equal wages to men for work of equal value with proper safeguards for the safety of their health.

### E. Social Safeguards and Other Social Risks

Item	Significant/ Not Significant/ None	Strategy to Address Issues	Plan Required
<b>Resettlement</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	<p>Project 1 entails reconstruction and rehabilitation of about 573 km of existing roads (23 road sections or subprojects) within the existing right-of-way. The subprojects pass mostly through hilly terrain and rural areas, where settlements adjacent to the road sections are thinly populated. Of the 23 subprojects, only four will have resettlement impacts. A detailed census was conducted in the four road sections, and short resettlement plans were prepared for each. No private land will be acquired. However, 17 encroacher and squatter households (totaling 87 affected persons) will suffer partial impacts on their residential and commercial structures. Of the 18 structures that will be affected, six are residential, commercial, and residential-cum-commercial. A majority (11) of the affected structures are boundary walls of private residences, schools, kitchens, and vacant structures. One religious structure will be partially affected.</p> <p>A resettlement framework (Supplementary Appendix 6) has been prepared for the remaining phases. In accordance to resettlement framework, a resettlement plan for each road will be prepared during the Investment Program implementation.</p>	<input type="checkbox"/> Full <input checked="" type="checkbox"/> Short <input type="checkbox"/> None <p>Four short resettlement plans have been prepared for Project 1.</p> <p>A resettlement framework also has been prepared for the subsequent projects.</p>
<b>Affordability</b>	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None	The development of the roads will reduce transport costs and increase the mobility of the local population in the project areas.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Labor</b>	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None	The project will provide construction job opportunities with higher wages. Men and women will be paid equally for equal work. The project will generate an estimated 912,600 person-days employment for labor.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Indigenous Peoples</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	In the state of Uttaranchal, the scheduled tribe population constitutes only 3% of the total population. No scheduled tribe households will be adversely affected in Project 1. The tribal population in Uttaranchal and areas affected by the subproject is integrated with the modern and dominant population of the state. Tribal groups in the subproject area freely interact and share their sources of water, folklore, food, infrastructure, and other belongings with the mainstream population and outside community. Moreover, these groups have nuclear families, and are open to new ideas such as family planning and formal education. Therefore, the socioeconomic impacts due to subprojects will be the same for these people when as the mainstream population. In view of these facts, a separate indigenous people	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <p>IPDF prepared for the subsequent phases.</p>

		<p>development plan (IPDP) was not prepared for Project 1.</p> <p>An indigenous peoples development framework (IPDF) has been prepared in case issues related to indigenous peoples are found in the subsequent projects of the Investment Program.</p>	
<b>Other Risks and/or Vulnerabilities</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	<p>Road safety measures have been integrated into the designs, particularly in densely populated areas. Uttaranchal is regarded as a low prevalence state for HIV/AIDS transmission. The preparatory studies showed that the Investment Program is likely to generate some risks of HIV/AIDS transmission as a result of improved mobility of the people and influx of labor during construction and maintenance. PWD will collaborate with the State AIDS Control Society to undertake information campaigns, awareness programs, and other measures to counter the spread of sexually transmitted diseases.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## SUMMARY OF SHORT RESETTLEMENT PLANS

### A. Investment Program and Project Description

1. The state government of Uttaranchal has embarked on a 10-year road improvement program, the Uttaranchal State Roads Investment Program (Investment Program), to support the state's infrastructure vision. Under the Asian Development Bank's (ADB) multitranchise financing facility (MFF), the Investment Program will have two major components: (i) improvement of about 10,800 kilometers (km) of the existing road network; and (ii) strengthening of the infrastructure management capacity of Uttaranchal's Public Works Department (PWD), which will be the Executing Agency for Investment Program. The first component will focus on improving the condition of the road network by carrying out rehabilitation and reconstruction works that are confined mostly within the existing rights-of-way (ROW).

2. Following the Strategic Option Study and the pre-feasibility study, PWD has identified and prioritized around 5,600 km of roads for improvement. Of the prioritized roads, detailed project reports based on detailed design have been prepared for 573 kilometers of roads (23 roads), which will form Project 1 of the MFF. The scope of the Project 1 road improvement component includes strengthening and reconstructing selected sections of state highways (SH), major district roads (MDR), and other district roads (ODR). In general, the existing single-lane carriageway (3.5 meters) will be retained with some standardization. Upgrading to intermediate (5 meters) and two-lane carriageway (7 meters) might be necessary on technical, traffic, and safety grounds in a few cases. Final selection of road sections, and detailed project reports for subsequent projects, will be prepared during implementation of the Investment Program. In Project 1, the resettlement impacts are confined to four of the 23 roads. Four short resettlement plans (SRP) have been prepared for these roads. This summary resettlement plan is for those four roads: (i) Dhakia–Gulabo–Pagia–Mukundpur, (ii) Almora–Bageshwar, (iii) Raniket–Mohan, and (iv) Kakrali–Thuligarh. As land acquisition will not be required for any of the roads, no legal title holders will be affected. However, some encroachers and squatters will lose portions of their structures and sources of livelihood.

### B. Scope and Objectives of the Short Resettlement Plans

3. The aim of the SRPs are to mitigate all unavoidable negative social and resettlement-specific impacts caused due to the the road improvements. To protect the rights of affected persons (AP) and communities, the plans have been prepared based on survey findings and consultation with stakeholders, in compliance with ADB's *Policy on Involuntary Resettlement* (1995) and *Indigenous Peoples* (1999). The issues identified and addressed in the SRPs are (i) the type and extent of loss of land and non-land assets, loss of livelihood, or income opportunities, and collective losses, such as common property resources and social infrastructure; (ii) impacts on indigenous people and vulnerable groups, specifically women; (iii) consultation with stakeholders, and scope of people's participation in the project; (iv) existing legal and administrative framework, and formulation of resettlement framework for the Investment Program; (v) entitlement matrix with provisions for relocation assistance and restoration of business incomes; (vi) cost estimate for implementation of resettlement and rehabilitation (R&R) activities; and (vii) institutional framework for the implementation of plan, including a monitoring and evaluation mechanism.

### C. Resettlement Impacts

4. The proposed work for all the road sections includes strengthening of existing single or intermediate-lane carriageway, and widening of existing single-lane carriageway to intermediate lane. The required formation width varies from 5 meters to 7.5 meters in single-lane and intermediate-lane carriageway, respectively. The four roads pass through mostly hilly terrain. According to PWD records, the ROW available varies from 9 meters to 15 meters. Minimization of resettlement was achieved mainly by reducing the corridor of impact. Based on the availability of ROW and likely improvement strategy, an agreement was reached with affected persons and PWD to reduce the corridor of impact to the minimum required construction width. This helped reduce the resettlement impact considerably in a majority of the road sections—and in some cases by 100%. In 19 of the 23 road sections, the resettlement impact was eliminated. The minimization of resettlement impacts for the four road sections are summarized in Table A10.1.

**Table A10.1: Minimization of Resettlement Impact**

Road Section	No. of Affected Families		No. of Families Saved
	Before Mitigation	After Mitigation	
Dhakia–Gulabo–Pagia–Mukundpur	52	14	38
Raniket–Mohan	413	2	411
Almora–Bageshwar	1422	1	1421
Kakrali–Thuligarh	39	1	38
Total	1,926	18	1,908

Source: ADB estimates.

5. After minimizing the impacts by adopting a suitable engineering option, only 18 structures will be affected. The type and use of various structures, with number of households and APs as enumerated during the census survey, are summarized in the Table A10.2.

**Table A10.2: Types and Uses of Affected Structures**

Types of Structures	No. of Structures	No. of Households	No. of APs
Residential Structures	1	1	4
Residential and Commercial Structures	4	4	24
Commercial Structures	1	1	9
Other Private Structures <sup>a</sup>	11	11	50
Religious Structures	1	0	0
Total	18	17	87

AP = affected person

<sup>a</sup> The other private structures include boundary walls, private school, kitchens, and vacant room.

Source: ADB estimates

6. Of the 18 private structures likely to be affected, 14 belong to encroachers and three to squatters with no land titles. The four residential-cum-commercial structures that will be affected belong to encroachers. The six APs who will lose the boundary walls of their residences, and one AP who will lose a portion of his kitchen, are encroachers. In addition, two private schools that also will lose their boundary walls are encroaching on government ROW. The three squatter households will suffer partial impacts on a commercial structure, a kitchen, and a vacant room, respectively. More than half of the boundary walls of the residential structures will be lost, while two residential and commercial structures also will suffer up to 30% loss. The rest of the structures will lose only 10% of their total structures. Of the affected structures, 12 are permanent, one is semi-permanent, and the remaining five are temporary.

#### **D. Socioeconomic Profile of the Affected Persons**

7. People living along the roads are from various socioeconomic groups. Of the 17 affected households, about 10 households live in poverty line and two households are from scheduled castes. None of the households are headed by women, or involve scheduled tribes physically handicapped persons. The average size of the affected households is 6.2 people, though one household has more than 10. In general, the economy of the area is agrarian. Most of the roadside settlers are involved into petty roadside businesses, though about five of the affected households are also employed in the government sector. About 12 households have annual incomes of less than Rs20,000, while and remaining have an annual income of about Rs50,000.

#### **E. Relocation and Compensation**

8. Relocation of households is not envisaged in any of the road sections, as none of the residential or commercial structures will be lost totally. Most of the structures would lose around 10% of their total area. The APs have indicated of rebuilding their structures within their available existing land. For that, they need advance notification and some assistance from the Executing Agency.

#### **F. Issues Related with Indigenous People**

9. In the state of Uttaranchal, scheduled tribes constitute only 3% of the population. Project 1 will not adversely impact any scheduled tribe households. The tribal population in Uttaranchal and the areas affected by the roads is integrated with the modern and dominant population of the state. Tribal groups in the project area freely interact and share their sources of water, folklore, food, infrastructure, and other belongings with the mainstream population and outside community. Moreover, these groups have nuclear families and are open to new ideas, such as family planning and formal education. Therefore, the socioeconomic impacts due to roads will be the same for these people as the mainstream population. In view of these facts, a separate indigenous people development plan (IPDP) was not prepared for any road.

#### **G. Gender Issues in the Project**

10. Women in the region are involved largely in household work, cultivation, and other agricultural activities. They use the roads for their routine household activities and economic activities, such as agriculture and marketing. Availability of all-weather roads with safe connectivity and better transport services will benefit the women of the area. Their mobility will be augmented, allowing them to access social services, higher levels of schooling, and better health facilities. Project 1 roads will not adversely affect any households headed by women.

#### **H. Review of Government Policy and Resettlement Principles for the Project**

11. In India, the Land Acquisition Act (1894), which has been amended from time to time, governs compensation for land acquisition and resettlement assistance for project-affected people. The state government does not have a policy on resettlement and rehabilitation. Under the Land Acquisition Act, compensation is paid only to the legal titleholders. Non-titleholders, such as encroachers, squatters, etc., are not entitled to compensation. However, the Government has adopted a national policy on resettlement and rehabilitation (NPRR) on project-affected families, known as NPRR-2004, to address development-induced resettlement. The policy essentially addresses the need to (i) provide succor to the asset-less rural poor; and (ii) support the rehabilitation efforts of the resource-poor sections, particularly small and



marginal farmers, scheduled castes and tribes, and women who have been displaced. For acquisition of strips of land for railway lines, highways, transmission lines, and pipelines, only an ex gratia payment of Rs10,000 per family is to be paid under NPRR. This policy does not recognize squatters and encroachers, and no provision is made for resettlement assistance and transitional allowances, etc. Despite these provisions, the policy does not restrict the compensation of lost assets to replacement cost. Based on this analysis of Government provisions and ADB's *Policy on Involuntary Resettlement* (1995), project-specific R&R measures have been formulated.

12. In accordance with the R&R measures suggested for the Investment Program, all affected households and persons will be entitled to a combination of compensation packages and resettlement assistance. The support will depend on the nature of ownership rights of lost assets and scope of the impacts, including the socioeconomic vulnerability of the APs. The APs will be entitled to the following five types of compensation and assistance packages: (i) compensation for the loss of land, and crops or trees at their replacement value; (ii) compensation for structures (residential or commercial) and other immovable assets at their replacement value; (iii) assistance in lieu of the loss of business or wage income; (iv) assistance for shifting; and (v) rebuilding and/or restoration of community resources or facilities.

13. Compensation for the lost assets of APs will be paid based on replacement value. Resettlement assistance for lost income and livelihoods will be provided to titleholders and non-titleholders, such as people with traditional or customary land rights, and roadside residences/owners with permits from local agencies to which they are paying annual tax for the same. The vulnerable group comprises (i) APs living in poverty, (ii) scheduled castes and tribes, (iii) households headed by women, and (iv) the elderly and disabled. An entitlement matrix (Table A10.3) has been developed, which recognizes and lists various types of losses resulting from a project, and provides for compensation and resettlement packages. Further, compensation and assistance will be paid to APs in the first section of each contract package, before commencement of civil works in first section and displacement or dispossession of assets. The subsequent sections under each contract package will be handed over to the contractor only after compensation/assistance to the APs is completed for each of the sections.

**Table A10.3: Entitlement Matrix**

	Type of Loss	Unit of Entitlement	Entitlement	Details
1	Loss of residential and commercial structure by encroachers	Households who have illegally extended their legally owned land or property onto public or other private land	<ul style="list-style-type: none"> <li>▪ No compensation for land</li> <li>▪ Compensation for structures to only vulnerable household</li> <li>▪ Shifting assistance for vulnerable encroachers</li> <li>▪ R&amp;R assistance only to vulnerable households</li> <li>▪ Right to salvage materials</li> </ul>	<ul style="list-style-type: none"> <li>▪ Encroachers will be notified and given a time in to remove their assets and harvest their crops.</li> <li>▪ Compensation for structures at replacement cost to the vulnerable households.</li> <li>▪ Training would be provided to upgrade the skills of the APs belonging to vulnerable groups who lost their commercial structures.</li> <li>▪ Shifting allowance of Rs1,500–2,500 or lump sum for shifting depending on the type of structure and extent of impact.</li> <li>▪ Right to salvage materials from the demolished structure.</li> </ul>
2	Loss of	Households	<ul style="list-style-type: none"> <li>▪ No compensation for land</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compensation for loss of structure at</li> </ul>

	Type of Loss	Unit of Entitlement	Entitlement	Details
	residential and commercial structure by squatters or informal settlers	living or earning their livelihood by illegally occupying public or private land	<ul style="list-style-type: none"> <li>▪ Compensation for structures.</li> <li>▪ Shifting assistance</li> <li>▪ R&amp;R assistance</li> <li>▪ Right to salvage materials</li> </ul>	<p>replacement cost.</p> <ul style="list-style-type: none"> <li>▪ A lump sum shifting amount of Rs1500–2500 depending on the type of structure.</li> <li>▪ Squatters or informal settlers will be notified and given a time to remove their assets.</li> <li>▪ Transitional allowance of Rs3000 for 3–6 months, depending on the extent of impact.</li> <li>▪ Training would be provided to upgrade the skills to the APs who lose their commercial structures.</li> <li>▪ Right to salvage material from the demolished structure.</li> <li>▪ Project-assisted relocation option will be provided to those whose residential or commercial structures become unlivable as a result of project impacts. A relocation site will be developed in consultation with these affected households (subject to availability of land)</li> </ul>
3	Common property resources	Community	Compensatory replacement	Cash compensation or reconstruction of the community structure in consultation with the community.
4	Temporary impact during construction, including disruption of normal traffic, increased noise levels, and damage to adjacent parcel of land or assets due to movement of heavy machinery	Community or Individual	Compensation	<ul style="list-style-type: none"> <li>▪ The contractor shall bear the cost of any impact on structure or land due to movement of machinery during construction.</li> <li>▪ All temporary use of lands outside proposed ROW to be obtained through written approval of the landowner and contractor.</li> <li>▪ Location of construction camps by contractors in consultation with PWD.</li> </ul>
5	Unforeseen impacts if any	Individual or Community	Unforeseen impacts will be assessed on a case-by-case basis, and suitable compensation or assistance will be paid as deemed fit by the Executing Agency or state government.	

PWD = Public Works Department; R&R = resettlement and rehabilitation; ROR = right of way  
Source: ADB estimates

14. The entitlement matrix was based on a social assessment carried out on the Project 1 roads. During loan implementation, if additional impacts are identified, the entitlement matrix will be updated by including provision of compensation and assistance for the additional impacts in the short resettlement plans.

## **I. Consultation and Public Participation**

15. All relevant aspects of project planning and development were discussed with primary and secondary stakeholders, including directly affected people, Executing Agency, and other local administrative agencies and departments. The directly affected population was consulted to understand their concerns and receive their suggestions on the types of mitigation measures that should be considered to address them. At the field level, 37 focus group discussions were held for all 23 roads. To ensure a comprehensive perspective on the project and its impacts, these discussions involved (i) village panchayats, (ii) village administrative officers, (iii) men, (iv) women, (v) farmers, (vi) business communities, (vii) concerned government departments, and (viii) disadvantaged groups. Further, the consultations and discussions with the project-affected people will continue throughout the implementation of the Program. A local nongovernment organization (NGO) will assist the project implementation units (PIU) with it. The NGO involved in the resettlement implementation activities will keep the APs informed about the impacts, compensation, and assistance proposed for them; and will facilitate in addressing any grievances. The summary of the short resettlement plans and the entitlement matrix will be translated into the local language; disclosed to the APs; and made available at the offices of PWD and project management unit (PMU) and on the ADB Web site.

## **J. Institutional Arrangements**

16. PWD has set up a project management unit (PMU) in Dehradun, which will be functional for the duration of the Project. For resettlement activities, the PMU will handle overall coordination, planning, implementation, and financing. The PMU will create a resettlement cell, with appointment of a resettlement officer (the rank of an executive engineer) and required support staff for the duration of the Project, to ensure timely and effective implementation of RPs. The consultant appointed by PWD for preparation of RPs for Project 2 roads will assist the resettlement officer. A social development or resettlement specialist under the loan-financed supervision consultant will be responsible for implementation of the RPs for subsequent roads. PIU will be established at PWD circle level for implementation of the project. The PMU will coordinate with PIUs for road-level, RP-related activities, and each PIU will designate one senior staff (not below the rank of an executive engineer) to coordinate the resettlement activities. The PIU, if required by the workload, also will appoint an assistant resettlement officer (at the rank of assistant engineer) with adequate land acquisition implementation expertise., who will be deputed from PWD to the PIU or engaged on contractual basis. The social or resettlement specialist of the supervision consultant will train the staffs at the PIU level for implementation of the RP. The PIU will maintain all databases, work closely with APs and other stakeholders, and monitor the day-to-day resettlement activities. In addition, an experienced and well-qualified NGO in this field will be engaged to assist the PIUs in the implementation of the RP. Due to the limited resettlement impacts of the project, only one NGO will be hired for the Project 1 roads. The NGO would play the role of a facilitator, and will work as a link between the PIU and the affected community.

17. A grievance redress committee (GRC) at the PIU level will be formed to handle APs' disputes and grievances, and facilitate timely implementation of the Project. The GRC will be headed by the district collector, or a representative from the collector's office. The GRC will include representatives from (i) the PIU office; (ii) APs, particularly of vulnerable APs; (iii) local government; (iv) NGOs; and (v) other interest groups. The GRC will meet to review grievances involving resettlement benefits, compensation, relocation, and other assistance.

## **K. Monitoring and Evaluation**

18. Internal project monitoring and evaluation will be carried out by PMU, PIU and the implementing NGO. An independent monitoring and evaluation consultant (IMEC) will be hired for the external monitoring and evaluation of the Project. In view of the minimum impacts expected from the Project, the external monitoring and evaluation shall be done by engaging an individual consultant with intermittent input during the project period. The PMU, PIU and NGO will be responsible for internal monitoring. The internal monitoring by PMU and PIU will include: (i) administrative monitoring, including (a) daily planning, implementation, feedback, and troubleshooting; (b) individual AP database maintenance; and (c) progress reports; (ii) socioeconomic monitoring, including case studies using baseline information to compare AP socioeconomic conditions, evacuation, demolition, salvaging materials, morbidity and mortality, community relationships, dates for consultations, and number of appeals placed; and (iii) impact evaluation monitoring, including income standards restored or improved, and socioeconomic conditions of the APs. PIU will provide the PMU with monitoring and evaluation reports documenting progress on resettlement implementation, and RP completion reports, for review and approval by ADB.

19. For external project monitoring and evaluation, the PMU will engage an IMEC with experience in resettlement activities and familiarity with Government and ADB resettlement policy. The IMEC will be engaged with ADB concurrence within 3 months of loan effectiveness. The IMEC will monitor and verify RP implementation to (i) determine whether resettlement goals have been achieved, (ii) assess whether livelihood and living standards have been restored, and (iii) recommend improvements. Monitoring also will ensure recording that APs' views are recorded on resettlement issues, such as (i) their understanding of entitlement policies, options, and alternatives; (ii) site conditions; (iii) compensation valuation and disbursement; (iv) grievance redress procedures; and (v) staff competencies. The IMEC also will evaluate the performance of the PIU and NGOs. PMU will submit quarterly progress reports, while the IMEC will report its findings simultaneously to the Executing Agency and to ADB twice a year. Financial provisions will be made under the project budget for the suggested institutional arrangements, such as establishing a resettlement cell, appointing a resettlement officer, hiring an NGO, and hiring an IMEC.

## **L. Resettlement and Rehabilitation Cost Estimate**

20. The implementation period for the SRPs under Project 1 will begin from third quarter of 2006 to the first quarter of 2007. The R&R cost estimate for all roads includes (i) eligible compensation and resettlement assistance, (ii) establishment of resettlement unit, (iii) staffing, (iv) training, (v) transportation, (vi) monitoring and evaluation, (vii) involvement of an NGO in project implementation, and (viii) other administrative expenses. The cost structure that has been used in the cost estimates has been derived through rapid field appraisal, and consultation with affected households and relevant local authorities. This will be updated during the implementation. To cover the cost of updating these estimates, an additional provision has been made with 15% contingency. The estimated R&R cost, including implementation cost of the Project 1 roads, is about \$66,432.