



Draft Design and Monitoring Framework

Project Number: 37184
September 2005

Fiji: Fourth Road Upgrading (Sector) Project

A design and monitoring framework is an active document, progressively updated and revised as necessary, particularly following any changes in project design and implementation. In accordance with ADB's public communications policy (2005), it is disclosed before appraisal of the project or program. This draft framework may change during processing of the project or program, and the revised version will be disclosed as an appendix to the report and recommendation of the President.

Asian Development Bank

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p>Impact:</p> <ul style="list-style-type: none"> • Contribute to sustainability of national economic growth • Contribute to promotion of economic and social development, hardship and poverty reduction, 	<ul style="list-style-type: none"> • Increased GDP • Expanded employment • Reduced hardship/poverty • Improved health and education indicators by the rural communities in the area of project influence – Targets would be an above the national average increase, particularly amongst the most disadvantaged groups 	<ul style="list-style-type: none"> • Quarterly reports of the Reserve Bank of Fiji Islands: 2002 GDP F\$ 3,443 m; GDP per capita F\$4,168; forecasts for economic growth (GDP) : 2005-1.2%; 2006-0.7%; and 2007-0.3% • HIES 2002/3 and future reports - rural unemployment data for 2002/3 as yet uncompiled urban unemployment, 14% • Government social indicators, by Province: <ul style="list-style-type: none"> - infant mortality, 2.2% - average life expectancy, 66.6 years - literacy rates, 92.9% • Social and household surveys, for example for Sigatoka road, average incomes per week derived from mission social impact surveys are: <ul style="list-style-type: none"> - Fijians: F\$102 - Indo-Fijians/others: F\$185 	<p>Risks:</p> <ul style="list-style-type: none"> • Extraneous economic events which adversely impact the economy and internal political events which adversely affect economic growth
<p>Outcome</p> <p>1. To reduce transport costs, and travel times, and road accidents on national roads as a result of upgraded and rehabilitated pavement conditions</p> <p>Outcome (contd)</p>	<ul style="list-style-type: none"> • targets for Sigatoka valley Road as an example, would be: <ul style="list-style-type: none"> (i) an improved surface roughness in the range 2.5 to 4.0 m/km; (ii) an increase in average vehicle speeds from present about 47 km/hr to 75 km/hr; (iii) an above the national average traffic growth rate, viz about 5% per annum over the next ten years; and (iv) in the first two years generated traffic of about 90 vehicle per day, divided as per 25 cars, 60 light vehicles, 4 trucks and 1 bus 	<ul style="list-style-type: none"> • Traffic data for Sigatoka Valley Road adjusted to Average Annual Daily Traffic (AADT) show: <ul style="list-style-type: none"> - Cars: 50 - light vehicles: 140 - light goods vehicles: 93 - medium goods vehicles: 9 - heavy goods vehicles: 3 - buses: 22 - total: 317 • Modeled vehicle operating costs (VOCs) from HDM-4 analysis: 2005 data for Sigatoka Valley Road, including value of time (VoT) in economic terms show: <ul style="list-style-type: none"> - cars: <ul style="list-style-type: none"> gravel: F\$0.73/km bitumen: F\$0.47/km - light vehicles: <ul style="list-style-type: none"> gravel: F\$ 0.61/km bitumen: F\$ 0.36/km 	<p>Assumptions</p> <ul style="list-style-type: none"> • Timely project completion within the estimated costs • Sustainable/adequate road maintenance funding • Continue priority given to road safety improvement program • Implementation of the restructuring action plan • Regular updating of input data to the road asset management (RAMS) and financial management systems (FIMS) • Continued sector reform and improvement of governance, expansion of private sector participation in road sector operations <p>Risks</p> <ul style="list-style-type: none"> • Impediments to timely subproject implementation due to delayed land-acquisition or poor contractor performance

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<p>Outcome (contd)</p>	<ul style="list-style-type: none"> • Reduced travel times on all improved and rehabilitated roads • Reduced vehicle operating costs (VOCs) • Lower freight and passenger transport costs/charges (in real terms) – target for freight should be a reduction in freight rates (Sigatoka into the valley) of, say, 50% – target for passenger transport should be a redesignation of the fare stages to 3.4 km or longer intervals <p>Increased motor vehicle ownership in economically deprived areas. As an example, the target for the Sigatoka Valley Road should be a higher than national average increase in ownership amongst the more deprived groups, i.e. for ownership amongst Fijian families to be, say, 30% in ten years time.</p>	<ul style="list-style-type: none"> - light goods: <ul style="list-style-type: none"> gravel: F\$ 1.07/km bitumen: F\$ 0.60/km - medium goods: <ul style="list-style-type: none"> gravel: F\$ 1.50/km bitumen: F\$ 0.83/km - heavy goods: <ul style="list-style-type: none"> gravel: F\$ 2.86/km bitumen: F\$ 1.47/km - buses: <ul style="list-style-type: none"> gravel: F\$ 2.23/km bitumen: F\$ 1.08/km • travel time surveys: 2005 Sigatoka Valley Road average vehicle speed: 47 km/hr • Modeled financial VOCs from HDM-4 analysis: Sigatoka Valley Road <ul style="list-style-type: none"> - cars: <ul style="list-style-type: none"> gravel: F\$0.35/km bitumen: F\$0.26/km - light vehicles: <ul style="list-style-type: none"> gravel: F\$ 0.66/km bitumen: F\$ 0.40/km - light goods: <ul style="list-style-type: none"> gravel: F\$ 1.10/km bitumen: F\$ 0.63/km - medium goods: <ul style="list-style-type: none"> gravel: F\$ 1.60/km bitumen: F\$ 0.92/km - heavy goods: <ul style="list-style-type: none"> gravel: F\$ 3.53/km bitumen: F\$ 1.88/km - buses: <ul style="list-style-type: none"> gravel: F\$ 2.19/km bitumen: F\$ 1.06/km • fare stage lengths on project roads before and after upgrading: currently 2.6 km for Sigatoka Valley Rd • Social Impact subproject 2005 data for Sigatoka Valley Road shows ownership of vehicles at: <ul style="list-style-type: none"> - 70% among Indo Fijians and others - 10% among Fijians 	<ul style="list-style-type: none"> • Reduced commitment to road sector performance improvement. • Ineffective PMU established

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2. Effective environmental management during construction	<ul style="list-style-type: none"> Number and magnitude of complaints and observed infractions of environmental guidelines – target no complaints or significant infractions 	<ul style="list-style-type: none"> Register of public complaints, site monitoring by PMU and action taken: <ul style="list-style-type: none"> - noise and dust complaints - fuel/hazardous discharges - incorrect spoil disposal - silt control 	
3. Effective construction site safety	<ul style="list-style-type: none"> Number and magnitude of complaints/incidents of failure to observe site safety procedures – target no complaints, no serious incidents 	<ul style="list-style-type: none"> Site safety register; observation of children's behavior, traffic and other safety incident reports 	
4. Improved access of the rural poor communities, including the poor, to markets, social services, markets and social other economic activities services by road pavement upgrading, including of the feeder networks	<ul style="list-style-type: none"> Increased public transport services in rural areas Increased population with direct access to sealed roads Reduced travel times to markets, health and education, and essential services 	<ul style="list-style-type: none"> LTA and Transport Department's information on road transport operator licenses and activities Bureau of Statistics social and household surveys. DNR's road inventory data 	<p>Assumptions</p> <ul style="list-style-type: none"> Continued implementation of pro-poor development policies High priority to rural development programs including improvement to the quality and coverage of services to maximize the service benefits of improved road access and transportation Support to commercialization of agriculture and diversification <p>Risks</p> <ul style="list-style-type: none"> External impediments to expansion of cash-crop cultivation.
5. Reduce road accidents, injuries and deaths as a result of the road safety improvement program	<ul style="list-style-type: none"> reduction of road fatalities to or below 5 deaths per 10,000 motor vehicles by 2010 	<ul style="list-style-type: none"> Police Accident Data Unit (PADU) road accident recording and reports 2004 9.83 per 10,000 vehicles reduce to 5 per 10,000 vehicles by 2010 	<p>Assumptions:</p> <ul style="list-style-type: none"> Driver behavior control enforced by police PADU continues to collect comprehensive accident data and maintain the electronic database and reporting Road safety education program continues in rural villages and settlements in project areas targeting women and men through community-based NGOs
<p>Outputs</p> <p>1. Upgraded 100 km of national roads</p>	<ul style="list-style-type: none"> Road roughness reduced Journey time reduced Enhanced economic activity facilitated 	<ul style="list-style-type: none"> Quarterly progress reports from PMU Monthly progress reports from supervision consultants Annual ADB project review Project completion report Post construction measurement of road roughness Regular and routine traffic counts 	<p>Assumptions:</p> <ul style="list-style-type: none"> GoF produces detailed designs and contract documents in a timely manner GoF acquires land for the project expeditiously Sufficient capacity and interest from local and regional contractors to ensure that competitive bids are received Weather conditions on the site during construction are not significantly wetter than normal so as to cause delay
2. Rehabilitation of about 100 km of national roads	<ul style="list-style-type: none"> Road roughness reduced Routine maintenance costs reduced 	<ul style="list-style-type: none"> Quarterly progress reports from PMU Monthly progress reports from supervision consultants Annual ADB project review 	<ul style="list-style-type: none"> GoF produces detailed designs and contract documents in a timely manner Sufficient capacity and interest from local and regional

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		<ul style="list-style-type: none"> • Project completion report • Post construction measurement of road roughness • Regular and routine traffic counts 	<p>contractors to ensure that competitive bids are received</p> <ul style="list-style-type: none"> • Availability of sufficient skilled and semi skilled workers in the local construction industry • Weather conditions on the site during construction are not significantly wetter than normal so as to cause delay
3. Replacement of about 20 bridges on national roads	<ul style="list-style-type: none"> • Risk of structural failure and route closure removed • Bridge load limits removed • Single lane bridge delays removed • Narrow bridge safety risk removed 	<ul style="list-style-type: none"> • Quarterly progress reports from PMU • Monthly progress reports from supervision consultants • Annual ADB project review • Project completion report 	<ul style="list-style-type: none"> • GoF produces detailed designs and contract documents in a timely manner • Sufficient capacity and interest from local and regional contractors to ensure that competitive bids are received • Availability of sufficient skilled and semi skilled workers in the local construction industry
4. Road safety civil works and completion of 4 year Fiji Road Safety Action Plan 3	<ul style="list-style-type: none"> • Accident reduction performance at treated sites and routes • Overall death and hospitalization rates per 10,000 vehicles and per 100,000 population; fall to 5 per 10,000 vehicles by 2010 	<ul style="list-style-type: none"> • TARSU crash reduction studies for sites and mass treatments • Police accident reports and statistical and performance monitoring by NRSC, TARSU and TPU 	<ul style="list-style-type: none"> • GOF unable to allocate resources to NRSC/TARSU • Lack of capacity and traffic safety design experience within NRSC/TARSU to effectively implement programs
5. Establishment of the Fiji Road Authority (FRA)	<ul style="list-style-type: none"> • Functional organization, management structure, business processes agreed Jun 2006, and in place Sep 2007. • DNR/FRA management positions fully established by Dec 2006 • Creation of the FRA from the DNR Jan 2008 	<ul style="list-style-type: none"> • DNR/FRA annual budgets and financial reports • Project review missions and mid-term review 	<ul style="list-style-type: none"> • GOF's continued commitment to policy reform and support in establishing the FRA
6. Commercialized performance based service delivery by DNR works depots	<ul style="list-style-type: none"> • All preparatory planning and training in place by July 2006 • First year performance assessment at July 2007 	<ul style="list-style-type: none"> • DNR's annual reports on performance against key indicators • Consultant TA progress reports and project completion report. • Project review missions and midterm review. 	<ul style="list-style-type: none"> • GOF and DNR continued commitment to service delivery reforms • PSC approval and recruitment of management strength in DNR
7. Effective management systems in place for road planning, procurement, construction, operations and maintenance management	<ul style="list-style-type: none"> • Upgraded procedures and computer systems are established by Dec 2006 for: <ul style="list-style-type: none"> - project accounting - asset management - financial reporting - systems integration 	<ul style="list-style-type: none"> • Consultant TA progress reports and project completion report. • Project review missions and midterm review. 	<ul style="list-style-type: none"> • GOF's provision of counterpart budget funding to support management systems upgrades • Staffing levels and training maintained to implement in-house systems and outsourcing
8. Contribute to improved efficiency of road asset management	<ul style="list-style-type: none"> • Expenditure F\$ per km on road maintenance; target continuous improvement as declining real expenditure per km for fixed performance level 	<ul style="list-style-type: none"> • DNR internal records through 2006 baseline surveys – for gravel and bitumen roads; periodic 3 year resurveys 	<ul style="list-style-type: none"> • GOF's provision of budget for outsourced surveys and maintenance of internal data systems

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	<ul style="list-style-type: none"> • average IRI roughness per km; targets established as percentage of sealed network (5%, 1%) with roughness exceeding target values 		
9. Staff training and capacity building in all essential road management functions.	<ul style="list-style-type: none"> • Individual staff training plans and recording instituted by June 2006 • All DNR/FRA staff complete initial training in new responsibilities by June 2007 	<ul style="list-style-type: none"> • Staff training accomplished against plans • Self assessment and completion of externally provided and assessed training • Consultant reports 	<ul style="list-style-type: none"> • availability of suitable courses and trainers; time constraints on key staff limit extent of training; constraint on training budget. • timely approval from PSC and MPE for staffing plans
10. Increased private sector participation in road construction and maintenance through: - contract maintenance - performance based contracting - enabling legislation and feasibility study fro BOT	<ul style="list-style-type: none"> • Number, value and percentage of maintenance contracts outsourced • Comparison of private sector performance by benchmarking against commercialized DNR depots • Feasibility study of Suva-Nausori build operate transfer (BOT)completed 	<ul style="list-style-type: none"> • Progress reports and project completion report of the institutional reform consultant • Project review missions and midterm review • Consultant reports on feasibility of BOT 	<ul style="list-style-type: none"> • development of successful measures for alternative employment, voluntary redundancy and retraining DNR's divisional labor, including mobility of labor into private sector contracting • GOF enacts legislation to provide for public private partnerships and BOT schemes
11. Sustained funding for road operations and maintenance established and in place.	<ul style="list-style-type: none"> • Budget allocation for road maintenance will increase from F\$25m in FY 2005-06 to F\$40m in 5 years 2010-11. • Performance related to RAMS indicated maintenance needs • Road Fund established by 1 Oct 2007 	<ul style="list-style-type: none"> • TA Consultant reports and project completion report • DNR/FRA annual budgets and financial reports • Project review missions and midterm review 	<ul style="list-style-type: none"> • GOF support to Road Fund dedicated funding concepts legislative changes.
Activities with Milestones		Inputs	
1.1 Detailed design of all road upgrading subprojects		Sep 2006	<ul style="list-style-type: none"> • ADB ADB input through (i) Loan funding to Project (ii) technical assistance (iii) review and monitoring role • Government Government participates through (i) counterpart funding (ii) Implementing Agency role of DNR (iii) Policy and planning roles of MTCA, LTA, TPU (iv) road safety roles of NRSC, Police, LTA, MTCA (v) oversight of policy and reforms by MOF, MPE (vi) participation of other economic and social development departments in subproject identification and program integration – MoH, MoE, Agriculture • Private sector Private sector participates through (i) ICB and LCB works contracts, (ii) performance based maintenance
1.2 Acquisition and resettlement complete on all subprojects		Dec 2006	
1.3 Commencement of first works on site		Jun 2006	
1.4 Completion of all works		Dec 2011	
2.1 Detailed design of all road rehabilitation subprojects		Sep 2006	
2.2 Commencement of first works on site		Jun 2006	
2.3 Completion of all works		Dec 2011	
3.1. Detailed design of all bridge subprojects		Sep 2006	
3.2 Commencement of first works on site		Jun 2006	
3.3 Completion of all works		Dec 2011	
4.1 Inter-agency agreement to FRSAP3 design		Dec 2005	
4.2 Design of safety works program		Sep 2006	
4.3 Completion of safety works program		Dec 2011	
5.1 Operational plan for FRA agreed by GOF		Jun 2006	
5.2 Empowering legislation drafted and enacted		Oct 2007	
5.3 FRA established and commences operations		Jan 2008	
6.1 DNR depot commercialization plans in place		Jul 2006	
6.2 First year of performance based service delivery complete		Jul 2007	
7.1 Asset management, financial system reviews		Dec 2005	
7.2 Systems upgraded and integrated		Dec 2006	

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8.1 Staff training plans developed		Jun 2006	contracting; (iii) partnerships in road safety delivery for Fiji Road Safety Action Plan 3 by road user and community groups (iv) as financial investor to prospective Suva Nausori BOT (v) suppliers of domestic and international consulting services
8.2 Staff training initial program completion		Jun 2007	
9.1 Training of depots and private sector in PBM		May 2006	
9.2 Establish public sector benchmarks		July 2006	
9.3 Award first performance based contracts		Oct 2006	
9.4 Complete first year of monitoring		Oct 2007	
10.1 Cabinet agreement on road fund policy		Dec 2005	
10.2 Operational systems defined & implemented		Sep 2007	
10.3 Legal establishment of Road Fund		Oct 2007	

DNR – Department of National Roads, FRA – Fiji Road Authority, LTA – Land Transport Authority, NRSc – National Road Safety Council, RAMS – Road Asset Management System, TARSU-Traffic and Road Safety Unit (DNR), TPU – Transport Planning Unit

