



1. Project Data

Project ID
P075058

Project Name
IN: TN Health Systems

Country
India

Practice Area(Lead)
Health, Nutrition & Population

Additional Financing
P118830

L/C/TF Number(s)
IDA-40180, IDA-47560

Closing Date (Original)
30-Sep-2010

Total Project Cost (USD)
262,370,000.00

Bank Approval Date
16-Dec-2004

Closing Date (Actual)
15-Sep-2015

	IBRD/IDA (USD)	Grants (USD)
Original Commitment	110,830,000.00	0.00
Revised Commitment	207,791,954.05	0.00
Actual	210,092,731.09	0.00

Prepared by
Salim J. Habayeb

Reviewed by
Judyth L. Twigg

ICR Review Coordinator
Joy Behrens

Group
IEGHC (Unit 2)

2. Project Objectives and Components

a. Objectives

The objective of the Project, as stated in the financing agreement, was to assist Tamil Nadu in improving the effectiveness of its health system through: (i) increasing access to, and utilization of, health services, particularly by poor, disadvantaged and tribal groups; (ii) developing effective interventions to address key health challenges including non-communicable diseases; (iii) improved health outcomes, access and quality of service delivery through strengthened oversight of the public sector health systems and greater engagement of the non-governmental sector; and (iv) increasing effectiveness of service delivery in public hospitals (Development Credit Agreement, 1/5/2005, p. 17).

The PAD presented the same objective, but added the words "significantly" and "public and private sectors"



as follows: “the project development objective would be to significantly improve the effectiveness of the health system, both public and private, in Tamil Nadu through: (i) increased access to and utilization of health services, particularly by poor, disadvantaged and tribal groups; (ii) development and pilot testing of effective interventions to address key health challenges, specifically non-communicable diseases; (iii) improved health outcomes, access and quality of service delivery through strengthened oversight of the public sector health systems and greater engagement of non-governmental sector; and (iv) increased effectiveness of public sector hospital services, primarily at district and sub-district levels” (PAD, p. 5)

The project was restructured with the provision of additional financing (AF) per a Financing Agreement dated 7/6/2010. The first part of the project development objective (PDO) statement was unchanged, but in the revised PDO, the text after the word “through” highlighted maternal and neonatal care services, and the scaling up of non-communicable disease interventions. The Financing Agreement stated that “the objective of the Project is to assist Tamil Nadu improve the effectiveness of its health system through: (i) increasing access to and utilization of maternal and neonatal care services, particularly by poor, disadvantaged and tribal groups; (ii) effective scaling-up of non-communicable disease interventions throughout Tamil Nadu; (iii) improving health outcomes, access and quality of service delivery through strengthened oversight of the public sector health systems and greater engagement of the non-government sector; and (iv) increasing effectiveness of service delivery in public sector hospitals at district and sub-district levels.

The restructuring changed associated outcome targets, largely consisting of upward revisions, setting higher levels of achievement for the project, as there was a scale up of non-communicable disease interventions. Nevertheless, both ICR and this review undertook a split evaluation. This review structures its evaluation according to the result areas shown in the statement of objectives listed in the Financing Agreement.

b. Were the project objectives/key associated outcome targets revised during implementation?

Yes

Did the Board approve the revised objectives/key associated outcome targets?

Yes

Date of Board Approval

29-May-2010

c. Will a split evaluation be undertaken?

Yes

d. Components

Original and Revised Components: The AF continued to support the original components and enhanced their activities, and revised the component on non-communicable diseases to transition from a piloting stage and model development to program interventions in prevention and control across Tamil Nadu.

Component 1: Increasing Access to and Utilization of Services (Appraisal US\$43.79 million; AF



US\$44.79 million; Actual US\$82.97 million)

- Reduce maternal and neonatal mortality by establishing emergency obstetric and neonatal care centers, and the provision of staff, training, equipment, supplies, drugs, and NGO support in transportation and mobile services.
- Improve tribal health through public-private partnerships with NGOs.
- Facilitate use of hospitals by the poor and disadvantaged people through community mobilization, training, and counseling.

Component 2: Developing Effective Models to Combat Non-Communicable Diseases and Accidents (Appraisal US\$5.65 million). The component included pilots, health promotion activities, and traffic injury prevention and treatment.

Revised Component 2: Non-communicable Disease Prevention and Control (Appraisal US\$5.65 as above; AF US\$22.01 million; Actual US\$26.68 million). The component added support to implement screening and treatment programs across the state, continued support for health promotion, and dropped traffic injury prevention interventions. Activities included the following:

- Health promotion activities to prevent non-communicable diseases, training teachers and peer educators for school-based activities, interventions in workplaces, and community-based interventions.
- Interventions included: (i) provision of necessary equipment at identified primary and secondary level facilities, training of doctors and nurses, honoraria for village link volunteers/community resource persons supporting cervical cancer screening and breast cancer detection; (ii) provision of necessary equipment and training for medical officers, nurses, and laboratory technicians at identified primary and secondary level facilities for cardiovascular disease screening and diabetes, and financing of contractual staff; (iii) Information, education and communication posters, stickers, flip charts, information boards, and broadcasting; and (iv) monitoring and evaluation of interventions.

Component 3: Building Capacity for Oversight and Management of the Health System (Appraisal US\$25.61 million; AF US\$33.80 million, Actual US\$60.86 million)

- Strengthen the health management information system.
- Improve the quality of care by mainstreaming practices, establishing quality improvement circles, protocols, management and oversight.
- Strengthen health care waste management.
- Establish a Strategic Planning Unit as a think tank, and a Public-Private Partnership Wing.

Component 4: Improving the Effectiveness and Efficiency of the Public Sector to Deliver Essential Services (Appraisal US\$50.90 million; AF US\$30.18 million, Actual US\$73.28 million)



- Upgrading secondary care facilities and basic amenities.
- Implementing an effective maintenance system for equipment repair through the Tamil Nadu Medical Services Corporation, suppliers, and hospital officials.
- Equipment rationalization and pharmaceutical management.
- Human Resource Planning and Development, staffing norms and accreditation of health facilities.
- Management strengthening and twinning arrangements between hospitals.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Project cost, financing, and Borrower contribution

The project instrument was a Specific Investment Loan. At appraisal, the project cost was estimated at US\$131.59 million consisting of US\$110.83 in Bank financing (IDA Credit of 73.9 million SDR) and a Borrower contribution of US\$20.76 million. An additional financing of US\$117.70 was approved on 04/29/2010 with Borrower financing of US\$13.08 million. US\$21 million (US\$20 million at 2005 exchange rates) were cancelled on 6/30/2005 to help finance the Emergency Tsunami Reconstruction Project. The final actual cost amounted to US\$243.79 million, of which an amount of US\$210.09 million was financed by the Bank and US\$33.70 million by the Borrower. All proceeds were disbursed.

Dates

The project became effective on 1/27/2005. A mid-term-review was held on 11/21/2007. A level-2 restructuring on 02/19/2010 reallocated the proceeds among categories. A level-1, Board-approved restructuring on 04/29/2010 provided additional financing, revised the results framework, and extended the closing date by three years to 9/30/2013. A level-2 restructuring on 6/28/2010 reallocated the proceeds among categories and modified the definition of incremental operating costs. A level-2 restructuring on 05/08/2013 extended the closing date by one year to 9/30/2014 due to technical challenges, previous state and municipal elections, and procurement intensive operations resulting in partial scale up of non-communicable disease interventions and the Health Management Information System. A final level-2 restructuring on 08/07/2014 adjusted the results framework and extended the closing date by 11.5 months to 9/15/2015 because of procurement delays. The project closed on 09/15/2015, five years after the original closing date of 09/30/2010, but including three years associated with the 2010 additional financing.

3. Relevance of Objectives & Design

a. Relevance of Objectives

Original Objectives. At appraisal, although Tamil Nadu had made substantial progress in improving the health status of its population, and in improving health care access in the last decades, it continued to face an unfinished agenda as well as new challenges related to the growing burden of non-communicable diseases.



Maternal mortality continued to be high because of access issues and because health facilities were unable to provide comprehensive emergency obstetric and neonatal care, and the quality of care remained poor (PAD, pp 1-2). The project objective to improve the effectiveness of the health system in Tamil Nadu is responsive to the above challenges, and is consistent with the State's needs and priorities, and with the current Bank's strategies. The Government of Tamil Nadu has identified the need for improving the performance of the health system and, in its Health Policy (2003), which remained in force at project closing, the State government has prioritized the strengthening of hospital services and service quality at district and sub-district levels, preventive health, reductions in infant mortality and maternal mortality, addressing non-communicable diseases, and health status improvements in the general population, the poor, and the disadvantaged. The Bank's Strategy for Health, Nutrition and Population Results (2007) advocated for health system strengthening. It noted the importance of M&E systems and highlighted the concerns about an increasing burden of non-communicable diseases that would strain health systems.

The objectives remained relevant to successive Country Strategies for India (2005-2008, and 2009-2012) and to the Bank's current Country Partnership Strategy for India (2013-2017), which focuses on using the Bank's financing, knowledge, advisory services and technical assistance to strengthen health delivery systems, improve access to services for excluded segments of the population, reduce maternal and infant mortality, address the growing burden of non-communicable diseases, and improve delivery systems by strengthening accountability and M&E systems (Country Partnership Strategy, pp. 20-21 and 27-28).

Revised Objectives. Relevance under the revised objectives is also rated high, as the objectives remained materially the same; the revision involved associated outcome targets.

Rating
High

Revised Rating
High

b. Relevance of Design

Under both original and revised objectives, relevance of project design was consistent with the stated objective to improve the effectiveness of the health system, and had a meaningful underlying logic linking planned activities to outputs and intermediate outcomes to improved system effectiveness. The provision of emergency obstetric care and transportation contributes to reducing maternal mortality. Screening and treating non-communicable diseases contribute to alleviating their impact on the population. Promoting access, utilization, and quality of services improves the system's effectiveness. Strengthening the health management information system contributes to oversight and informed decision-making.

Rating
High

Revised Rating
High



4. Achievement of Objectives (Efficacy)

Objective 1

Objective

Improve the effectiveness of the health system.

Rationale

Outputs

The outputs relate to both original and revised objectives, except for non-communicable disease interventions which were undertaken under the revised objectives.

The project established 75 comprehensive emergency obstetric and neonatal care centers, including 20 facilities in medical colleges; strengthened eight others; and built 50 emergency obstetric and neonatal care centers that provide 24x7 care. 562 staff nurses were recruited, 1,419 doctors and 3,342 nursing staff were further trained, and protocols were disseminated. The project provided free emergency transportation for all pregnant women to reach a hospital for delivery (TTL clarification, 8/31/2016), screening programs, information, education and communication, and analysis of every maternal death. The project refurbished and upgraded 225 secondary care hospitals and eight maternity blocks.

In order to improve tribal health, the project trained and retrained non-governmental organizations, provided mobile outreach services, and instituted a bed grant scheme to provide free in-patient care for tribal patients, an educational campaign suitable for tribal populations, a campaign using traditional modes of communication, and 74 Tribal Patient Counselling Facilities providing services to about 1.9 million patients. To facilitate the use of hospitals by the poor, the project provided emergency ambulances, information and education materials, and 185 patient counseling centers.

The project piloted and developed models to combat selected non-communicable diseases. The project developed a new computerized Health Management Information System. It developed quality indicators and established Quality Improvement Circles in 267 secondary-level health facilities. The project promoted efforts to rationalize equipment and manpower service norms, trained about 400,000 health and management staff, and facilitated the accreditation of 12 hospitals by the Quality Council of India. It strengthened clinical laboratory services in secondary care hospitals and medical college hospitals. The project strengthened healthcare waste management in the State, including the training of 49,500 health personnel, and plan implementation in 449 health facilities. The project established a performance grading system for hospitals, a Strategic Planning Cell, and a Public-Private Partnership Unit in the State government, and provided for the outsourcing of housekeeping services in 48 secondary care hospitals.

Outcomes

Notes:

- (a) In addition to project indicators, the ICR used national surveys as evidence of outcomes; and
- (b) the achievement of the objective is assessed over the life of the project.



In the area of access and utilization of services, including maternal and neo-natal services, there was a remarkable increase in attended deliveries which rose from 88% to 99% between 2007 and 2015. At the end of the project, the travel time for mothers did not exceed 30 minutes as an access standard, declining from more than one hour before the project. The proportion of C-section deliveries at the secondary level among mothers from Scheduled Castes/Scheduled Tribes rose from a baseline of 28% in 2008 to 40% in 2015, slightly below the target of 43%. An end-line study among tribal groups showed that the bed-grant scheme motivated more tribal community mothers to deliver in facilities, and reduced visits to a traditional healer. Data of the National Sample Survey Organization (2004 and 2014) showed an increase among people who reported any ailment in the past 15 days and received any medical care from 81% to 97%, including increases in rural residents from 78% to 97%, and for the lowest 40% income groups from 76% to 98%. Total in-patient utilization exceeded the target of a 20% increase. But the percentage of scheduled tribe patients who received any medical care fell from 96.2% in 2004 to 93.3% in 2014. Hospitalization rates were 34% higher in 2014 than in 2004. The 27% increase among the poorest 40% compared to a 14% increase among the richest 60% narrowed, but did not eliminate the disparity that existed before the project (ICR, p. 33).

However, the ICR (p. 32) noted 'surprising decreases' in utilization of antenatal services and immunization of children under the age of 2 years. The regression in ante-natal utilization was substantial and shows that mothers who had ante-natal check-up in the first trimester decreased from 75.3% in 2005-06 to 64% in 2015-16; and mothers who had at least 4 antenatal care visits decreased from 87.4% in 2005-06 to 81.2% in 2015-16. Children under the age of 2 who were fully immunized (BCG, measles, 3 doses of polio, and DPT) substantially decreased from 80.9% in 2005-2006 to 69.7% in 2015-16. The ICR's explanation is that the low incidence of vaccine-preventable illnesses in the state, resulting from earlier coverage, may have made immunization seem less important. This raises questions about the effectiveness of information, education, and communication efforts. An effective health system would be expected to maintain past gains.

The project completed rigorously evaluated pilots for hypertension and cervical cancer. This led to a policy decision to scale-up cervical cancer and cardio-vascular disease interventions state-wide in the subsequent project phase, under the AF.

Regarding health outcomes, the maternal mortality ratio in Tamil Nadu has declined steadily from 134 maternal deaths per 100,000 births in 2003, to 97 in 2009-11, 79 in 2012-14, and to 68 in 2015, which is about half the all-India rate of 167 per 100,000 births. Within the period 2010-2014, neo-natal mortality declined by 12% at medical college centers. The National Family Health Surveys (2005-06 and 2015-16) show that Tamil Nadu's infant mortality per 1,000 live births decreased from 30 in 2005 to 24 in 2010, and to 21 in 2015, and that under-five mortality fell from 35 in 2005 to 27 in 2010, with no additional decrease in 2015. The State of Tamil Nadu had the largest decline in infant mortality among all the states in India in the decade before 2010. It is understood that other factors involving broader socio-economic determinants beyond the influence of the project have contributed to improved health status, including declining fertility, rising literacy, and improved sanitation. The ICR states that much more sophisticated analytic work would be needed to try to disentangle the impact of various factors (ICR, p. 29) and to clarify attribution aspects. Population-wide data for trends on non-communicable diseases were not available. There was no information on the trends of the risk factors for non-communicable diseases, as data was collected for the first time in the 2015 National Family Health Survey. The ICR notes that, although no data were available on



treatment outcomes, it would be reasonable to assume that gains would accrue over time.

In the area of service delivery quality, the risk-adjusted maternal case fatality rate in comprehensive emergency obstetric and neonatal care centers fell from 19.6 in 2006-07 to 4.6 in 2014-15, and risk-adjusted neonatal mortality fell from 5.24 to 3.98, indicating improved case management. Referral of mothers from those centers decreased from 15% of total maternal admissions in 2004-05 to 4% in 2014-15, indicating better case management. At the primary care level, the percentage of children with diarrhea who received oral rehydration salts doubled from 32% in 2005 to 62% in 2015. The project put in place quality assurance and quality improvement mechanisms, including monthly reporting on 80 indicators by all emergency obstetric and neonatal care centers, and reporting on 20 indicators by all public hospitals. The mechanism was used to assign quality grades that triggered remedial action to address sub-standard grades, in concert with Quality Circles of Excellence in 267 secondary hospitals. The number of public hospitals accredited by the National Accreditation Board for Hospitals reached the target of 12 hospitals in 2015, from a baseline of zero in 2010. By the end of the project, another 46 hospitals were preparing for accreditation. Patient satisfaction surveys were undertaken in 2010 and 2014, and were compared with the baseline survey of 2006. They showed that satisfaction scores were very favorable in both the general population and in tribal groups.

At the same time, improved quality of care in public hospitals was not well demonstrated by indicators on bed occupancy, number of diagnostic services performed, number of major surgeries, or by the number of night time caesarians at the emergency obstetric clinics. Also, the ICR's findings highlighted the turnover and shortages of specialist doctors at the emergency obstetric and neonatal care centers, and concluded that "this will require constant monitoring and proactive action by Department of Health and Family Welfare" (ICR, p. 17). The Stakeholder Workshop Report indicate that "fluctuations in specialist doctors and in posting staff nurses at the Comprehensive Emergency Obstetric and Neonatal Care facilities are a significant impediment to service delivery" (ICR, p. 71).

With regard to effectiveness of service delivery in public hospitals, this element is cross-cutting with other result areas that collectively reflect effectiveness of the health system, such as utilization and quality of service delivery. Also, the ICR reasonably assumes that project outputs in physical capacities, human resources, and processes, contributed to improved effectiveness of service delivery in public hospitals, including health information system, strengthened state-level capacity of pharmaceuticals and medical supplies procurement, repair and maintenance of medical equipment, and private-public partnerships.

In conclusion, the objective to improve the effectiveness of the health system was achieved, meriting a rating of Substantial.

Rating
Substantial

Objective 1 Revision 1
Revised Objective



Improve the effectiveness of the health system.

Revised Rationale Outputs

As noted previously in Section 2c, the AF continued to support the outputs under the original components. In the area of non-communicable disease prevention and control, the project provided for the screening of cervical cancer, breast cancer, hypertension, and diabetes, free of cost, at 1,753 primary health centers, 270 hospitals, 23 government medical college hospitals, dispensaries, and 100 selected municipal health facilities. It provided medical supplies and equipment using an electronic inventory, recruited 2,344 nurses, and trained 1,155 clinical staff and 190,000 other staff. The project provided mass media for behavior change communication on smoking cessation, healthy diets and exercise, and community-based interventions reaching 250,000 women, school-based health promotion in 16,369 schools, and workplace-based health promotion at 400 sites. Traffic injury prevention activities were dropped at the 2010 AF, under the revised objectives.

Outcomes

The outcomes are the same as under the original objectives, with the addition of results related to non-communicable disease interventions.

The roll-out state-wide of screening for cervical and breast cancer, hypertension, and diabetes, along with referral for treatment, reached more than 65% of the targeted age-groups, and identified about four million positive cases, most of which were unlikely to have been detected without the project. 77.4% of people over 30 years of age were screened for hypertension. Diabetes screening covered 61% of the population over 30 years of age. Of women aged 30-60 years, 71.3% were screened for cervical cancer and 86% for breast cancer. The ICR also noted the challenge in patient follow up and adherence to treatment. No data were available on treatment outcomes (ICR, p. 29).

Revised Rating Substantial

5. Efficiency

The PAD stated that a complete economic analysis was difficult to carry out in view of the lack of available information from other comparable settings to use as evidence for such analysis (PAD, pp. 14-15). Although it did not attempt to quantify the rate of return, it provided arguments about the cost-effectiveness of the proposed interventions. As for financial sustainability, it concluded that, during the project period, project financing would be in the range of 0.16% at the minimum, to a maximum of 8.9% of the total state health budget, and that, since the quantum of the project funds would be declining during the end years, sustaining this level of direct costs should not be a major burden for the State (PAD, p. 89).



In 2015, total health spending in Tamil Nadu in 2015 was about US\$17 per person, with relatively good health outcomes compared to other states and countries with similar levels of spending. Public expenditure on health in Tamil Nadu was less than US\$3 per capita per year in 2005, or 4.6% of the state budget health share. The state budget share for health did not rise during the project, but economic growth has substantially increased the health budget by an average of nearly 8% annually (ICR, p. 31).

International experience shows that the main programs implemented by the project are cost-effective and generate substantial benefits. This includes essential obstetric care and non-communicable disease management at the primary and secondary levels of health care. The estimated costs of treatment and lost productivity caused by cancers, heart disease and other non-communicable diseases suggest high rates of return on well-chosen program investments. For a cost of US\$19 million, the non-communicable disease program provided hypertension screening for 29 million people, diabetes screening for 23 million people, breast cancer screening for over 12 million women, and cervical cancer screening for 10 million women. The screening detected approximately three million new hypertension cases, one million people with diabetes, 350,000 cervical cancer cases, and 153,000 breast cancer cases. As a result, it appears that the benefits outweighed the costs. The ICR notes that a study on NCDs in India (*Bloom, D.E., et al. 2014. Economics of NCDs in India: The costs and returns on investment of interventions to promote healthy living and prevent, treat, and manage NCDs. World Economic Forum, HSPH*) estimated the return on the NCD program investment to be above 15 percent.

Some aspects of design have contributed to efficiency. The project used a variety of stakeholders who had a comparative advantage, through partnerships and contracting out of private sector actors and non-governmental organizations in multiple activities such as emergency transportation, service delivery to tribal populations and in remote areas, disposal of health waste, and counseling services. The project scrutinized and negotiated the cost of services of outsourced providers comparing costs per patient. Changes in the way the emergency transport services were managed and information to promote their use reduced the average operating costs per trip from Rs 2,551 in 2008-09 to Rs 1,096 in 2014-15.

However, there were shortcomings in the efficiency of implementation. Implementation shortcomings and procurement delays during the life of the project necessitated project extensions to complete project activities. The Restructuring Paper of 5/2/2013 states that *“procurement intensive operations have resulted in partial scale-up of both the non-communicable disease and health management information system interventions”*. The Restructuring Paper of 8/2/2014 notes, as the reason for extension, *“the project’s inability to fully leverage the previous one-year extension in 2013”* and *“repeated non-responsive tenders for medical equipment, consumables and reagents; contentious procurement of medical and IT equipment, resulting in uncharacteristic delays...”*. During the initial several years, deficiencies were observed in financial management, and, according to the ICR, three ISRs of May and October 2007, and April 2008, rated financial management performance as moderately unsatisfactory. A contributing factor was the long vacant position of Financial Advisor and Chief Accounting Officer, resulting in ineffective financial management according to the ICR. There were staff shortages as noted above in Section 4. The project’s mid-term review concluded that *“the NGO contracting and contract management process was not working well, and needed more oversight and monitoring and action to ensure strong performance and achievement of the intended results”*, and *“recommended that the PMU consider hiring an external agency to take over this task”* (ICR, p. 17). There were delays in rolling out



the Health Management Information System (ICR, p.17). The NGO consultants who were responsible for field supervision in tribal areas did not perform satisfactorily, hence adequate monitoring of various NGO activities remained a challenge (ICR, p.22). The ICR also noted that the *“turnover of field staff of NGOs was a problem, and repeated capacity building was needed”*. In conclusion, given the cost-effectiveness of project interventions, and shortcomings in the efficiency of implementation, efficiency is rated Substantial.

Efficiency Rating

Substantial

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 <input type="checkbox"/> Not Applicable
ICR Estimate		0	0 <input type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

Under both the original and revised objectives, relevance of objectives is rated High as they are responsive to the needs of the State of Tamil Nadu as it faced an unfinished health agenda, including high maternal mortality, as well as new challenges related to a growing burden of non-communicable diseases. The objectives are consistent with the State's priorities and health policy, and with the Bank's Country Partnership Strategy on strengthening health delivery systems, addressing the growing burden of non-communicable diseases, and improving access to marginalized populations. Under both the original and revised objectives, relevance of project design is rated High as it was consistent with the objective to improve the effectiveness of the health system, and showed an underlying logic linking planned activities to outputs and intermediate outcomes to improved system effectiveness. Under both the original and revised objectives, the objective to improve the effectiveness of the health system was achieved and is rated Substantial. Efficiency is rated Substantial in view of the cost-effectiveness of project interventions, but with shortcomings in the efficiency of implementation. These ratings are indicative of minor shortcomings in the project's preparation and implementation, and therefore an Outcome rating of Satisfactory under both the original and revised objectives. According to IEG/OPCS guidelines, when a project's objectives are revised, the final outcome is determined by the weight of Bank disbursements under each set of objectives (43% under the original objectives, and 57% under the revised objectives).

- Under the original objectives, the outcome is rated Satisfactory (5) with a weight value of 2.15 (5x43%).



- Under the revised objectives, the outcome is rated Satisfactory (5) with a weight value of 2.85 (5x57%).
- These add up to a value of 5, which corresponds to a Satisfactory rating, indicative of minor shortcomings in the project's preparation and implementation.

a. Outcome Rating

Satisfactory

7. Rationale for Risk to Development Outcome Rating

The occurrence of major unexpected changes that may be detrimental to the ultimate achievement of the operation's development outcome appears to be unlikely. The Government of Tamil Nadu has demonstrated strong commitment and ownership of the agenda supported by the project, which is considered a reflection of the State's health policy and strategies. Various stakeholders and donor agencies are supportive of the State's strategies. Project activities were integrated and mainstreamed into the work programs and budget of the Department of Health & Family Welfare, which is also supported by the National Health Mission of the Union Government. New staff and contractual staff sanctioned under the project have been transferred to the department's directorates along with the programs. Hence, technical sustainability is likely. The project has also developed substantial institutional capacity in the State, including a State Health Data Resource Center, a Strategic Planning Cell, a Public-Private Partnership Unit, information systems, hospital accreditation, and systems for inventory control and maintenance of medical equipment. Technical, managerial, and process skills have been strengthened at various levels of the health system. Therefore, taking into account the above, the overall Risk to Development Outcome is rated Negligible.

a. Risk to Development Outcome Rating

Negligible

8. Assessment of Bank Performance

a. Quality-at-Entry

The strategic relevance of the project was high, as it was responsive to the State's needs and to the Bank's Partnership strategy. Preparation built upon extensive analytical work, including an organizational review of the Department of Health & Family Welfare, and a 2002 quality enhancement review of the Bank's experience with health systems development projects in India since 1995. Past lessons were incorporated (PAD, pp. 8-9), such as focusing on health outcomes for the poor, experimenting with new sustainable approaches to non-communicable disease prevention and control, exploring opportunities for public-private partnerships, and added focus on sector planning and management. The Bank team had an inclusive approach and engaged with important stakeholders in developing the operation. Preparation paid particular attention to marginalized groups. The project development was consistent with the Bank's fiduciary role.



Implementation arrangements were adequate overall. A detailed procurement plan for the first 18 months was developed. Risks were identified and mitigation measures were planned. Planning for a computerized Health Management Information System to replace manual reporting set the stage for monitoring and evaluating project activities, and for improved decision making. Environmental and social safeguards aspects were adequately covered, including a Health Care Waste Management Plan, a Tribal Development Plan and a Social Assessment. However, the procurement processing capacity of the State in procuring goods, and of the Public Works Department in civil works, was overestimated (ICR, p.41). M&E arrangements were adequate. The selection of indicators could have been sharper (ICR, p. 41). Overall, there were only minor shortcomings in the way the Bank identified, facilitated preparation of, and appraised the operation with the aim to achieve the planned development outcomes, consistent with a Quality-at-Entry rating of Satisfactory.

Quality-at-Entry Rating

Satisfactory

b. Quality of supervision

The in-country presence of the Bank Task Team, supported by the Country Management Unit, facilitated early identification and follow up on issues facing implementation progress and the pursuit of development outcomes. There were three task team leaders during the life of the project with smooth transition between the task leaders. Implementation support was continuous with formalized periodic missions and field visits. Concerning candor, the ICR states that “the team’s ratings sometimes seemed premature to the sector manager, but were validated by subsequent implementation” (ICR. P. 15). The Bank team, located in Delhi, held weekly audio meetings with the State team in Chennai to follow up on issues as they arose. The mission aide-memoires were action-oriented. The Bank team showed diligence in monitoring fiduciary and safeguard aspects under the project. The relationship with the client and stakeholders was collaborative with high professional standards. The adequate progress of the project, and its effective implementation support, have facilitated the provision of additional financing which allowed the scale up of project activities and the replacement of funds that were previously released to support Tsunami response activities.

Quality of Supervision Rating

Highly Satisfactory

Overall Bank Performance Rating

Satisfactory

9. Assessment of Borrower Performance

a. Government Performance

The ownership and commitment of the Government of Tamil Nadu was consistently strong, as was the commitment of the Union Government of India, throughout preparation and implementation, including the endorsement of additional financing to scale up activities. The state government provided an enabling environment and facilitated public-private partnerships, including for reaching remote areas and tribal



populations, the provision of 24x7 maternal and neonatal health services, testing and evaluating new approaches to non-communicable disease prevention and control as well as their scale-up, and the establishment of the first fully computerized Health Management Information System in India. The state government approved the recruitment of staff, notably physicians and nurses, to allow the implementation of emergency obstetric care and non-communicable disease interventions. To promote sustainability, the state government began absorbing project activities well before project closing. It also absorbed incremental staff into the civil service cadre. The government complied with project covenants and fiduciary aspects. The initial delays in releases from the Treasury were attributable to the Tsunami emergency. The observations included in the ICR suggest that there were no shortcomings identified in government performance, indicative of a rating of Highly Satisfactory.

Government Performance Rating

Highly Satisfactory

b. Implementing Agency Performance

The Project Management Unit had overall responsibility for managing the project with support from the Public Works Department for civil works, and from the Tamil Nadu Medical Services Corporation for procurement of equipment and maintenance. The Unit had a dedicated team committed to achieving development objectives. The team ensured that project covenants were complied with. The project director was a senior officer of the Indian Administrative Service. The Unit maintained a focus on capacity building, skills enhancement, and professional training capacity. The Project Management Unit led the actions to improve the quality of care in hospitals, and championed the system of grading. The Unit consulted regularly with key stakeholders and worked closely with various Directorates of the Department of Health & Family Welfare. Procurement delays and financial management issues were overcome. Within the larger scope of the Implementing Agency's effective performance, these shortcomings are considered minor, indicative of a rating of Satisfactory.

Implementing Agency Performance Rating

Satisfactory

Overall Borrower Performance Rating

Satisfactory

10. M&E Design, Implementation, & Utilization

a. M&E Design

The M&E design was sound. The PAD's Results Framework was logical and was developed in consultation with key stakeholders. It benefited from QER inputs. It elucidated data sources, frequency, and clear responsibility for data collection. The design was well-embedded institutionally with client ownership. However, there were shortcomings in the selection of some indicators that could



not appropriately measure certain outcomes such as quality. At appraisal, baseline data were available for only a few indicators, and most targets were vague (ICR, p. 18).

b. M&E Implementation

Data sources used to monitor and report regularly on progress and results included: routine health system records, routine project data, on-line monthly reports from hospitals on a set of 20 indicators under the Institutional Services Monitoring Report, facility surveys, baseline and end-line surveys, and many detailed studies of selected project activities. The indicators were regularly measured and analyzed. In general, the M&E implementation function was undertaken effectively, but with some weaknesses that included: (i) delays in baseline surveys - 15 months for the non-communicable disease baseline studies for the pilots and for patient satisfaction surveys; (ii) changes in methodology in repeat surveys of patient satisfaction that make trends difficult to assess; and (iii) mistaken entry of data on the poorest 40% in the results reporting for Scheduled Castes/Scheduled Tribes. The Bank commissioned a new analysis to correct the data for the indicator on access and utilization of services by the poorest 40% and tribal groups. After a slow start and implementation challenges, a comprehensive Health Management Information System was rolled out in a phased manner from December 2008 onwards, and it comprised: (i) a Hospital Management System reporting on clinical activities in health care facilities; (ii) a Management Information System as an online reporting platform for clinical and ancillary support services, national health programs, and administrative information; (iii) the College Management System capturing data from government medical colleges; (iv) the University Automation System for data from the Tamil Nadu Dr. MGR Medical University; and (v) customized websites for 20 government medical colleges.

c. M&E Utilization

M&E data were widely disseminated and shared with stakeholders, both domestic and international. The new Health Management Information System provided quick access to information on various aspects of the health system -- hospital activity and efficiency indicators such as in-patient and out-patient data, referrals, waste management, quality of care, morbidity and mortality, financial management information, and human resources. By July 2015, the system was fully functional in 264 secondary care hospitals, and was at an advanced stage of implementation in the State's 50 tertiary care hospitals. The Management Information System had integrated 1,889 primary health centers, 264 secondary care hospitals, and 50 tertiary care hospitals. All primary health centers were reporting effectively, with reports flowing to the Directorate of Public Health, and all data from secondary care hospitals flowing to the Directorate of Medical & Rural Health Services. A State Health Data Resource Center was set up with the mandate to drive and enable evidence-based planning, budgeting, management, forecasting, monitoring and reviews by the Department of Health & Family Welfare.

All public hospitals reported data on the quality and utilization indicators on a monthly basis. The project used the data to grade hospitals on a monthly basis from A to D. Hospitals with C and D grades were



followed up to assess constraints and agree on actions that would improve service delivery. Quality Circles of Excellence were set up in hospitals to track progress, and to implement improvement measures.

The piloting of non-communicable disease control interventions, before scaling up the program interventions in 2010, allowed improvements in the design of activities, adjustments in educational messages and methods, and re-training to address the skill gaps that were identified at the provider level. When data uncovered lost patients for follow-up treatment, the project provided longer-term supplies of medicine for hypertension and diabetes as patients were not able to visit health facilities more frequently. The project instituted monthly reviews of every maternal death to review the causes, and to prevent future similar cases. This contributed to the collective efforts aiming at reducing maternal deaths in the State. The project had a notable demonstration effect in other states and at the national level, and was visited by major international donors.

M&E Quality Rating

Substantial

11. Other Issues

a. Safeguards

The project was classified as a Category B and triggered two safeguard policies: OP/BP/GP 4.01 on Environmental Assessment and OD 4.20 on Indigenous People. Both policies were effectively handled with full compliance, and were rated satisfactory in all ISRs. The Environmental Assessment Category was appropriately recorded in both PAD and ICR.

Environmental aspects. Improving the management of health care wastes, and the institutionalization of related activities across the programs and health facilities, were satisfactory. A Comprehensive Health Care Waste Management Plan was developed and implemented in a phased manner -- first as a pilot in 2006, followed by implementation starting in 2008 and covering 449 health facilities, including secondary care, tertiary care hospitals, and thirty-bedded primary health centers. At the time of the additional financing in 2010, health waste management was integrated with infection control, in line with emergent good practices, and was referred to as Infection Control and Waste Management. Over 49,500 health personnel from 449 public health institutions were trained and retrained in health care waste identification, collection, segregation, disinfection, and disposal, through a network of nine Regional Training Centers. Supervision missions found adequate availability of supplies. Public-private partnerships were established at 30 Common Treatment Facilities where waste was collected, disinfected and disposed of. From 2013 onwards, the cost of the plan's implementation was financed through the National Health Mission, while the project financed the training cost. Findings of an end-line assessment in 2014 showed that all hospitals were implementing Infection Control and Waste Management guidelines, 78% had an infection control officer, and 80% had infection control committees. The assessment concluded that the plan was well implemented and offered suggestions for further improvements, such as on-line training and better reporting of needle-stick injuries.



Indigenous people. A Social Assessment was conducted with the participation of key stakeholders. The assessment informed the preparation of a Tribal Development Plan to provide suitable interventions to increase access to health care in tribal areas. There were challenges in implementing the Tribal Development Plan. Non-governmental organizations varied in their capacities and willingness to partner with the government. It took longer than anticipated to finalize the guidelines and share them with the organizations. Turnover was a challenge, and field supervision was inadequate. Nevertheless, a survey of the targeted population during the 2014 end-line assessment showed satisfaction with the services.

b. Fiduciary Compliance

Financial management. During the initial four years of project implementation, deficiencies were observed in financial management. Three ISRs (May and October 2007, and April 2008) rated financial management performance as moderately unsatisfactory. There was a delay in appointing the Financial Advisor/Chief Accounting Officer until early 2008. There was a delay in submitting the 2006-07 audit report, delays and insufficient follow up in settling advances drawn for training, and inadequate financial oversight over non-governmental organizations. In order to facilitate the release of funds from the state treasury, the Bank agreed to the government proposal to change the fund flow mechanism by creating a State Society (an independent legal entity) on 4/01/2008 (TTL clarification, 8/31/2016). This arrangement led to a smooth flow of funds to project activities, excluding civil works and major procurement.

Financial management arrangements were mainstreamed within the regular government accounting systems. The Comptroller and Auditor General conducted external audits per terms of reference agreed with the Bank. A few financial statements of the Project Management Unit were qualified, and in one instance, an accountability flag was triggered because of a special opinion. All issues were addressed to the satisfaction of the auditors, and their observations were answered and resolved. There were no unresolved audit objections. A Governance and Accountability Action Plan was prepared for the additional financing in 2010, and Interim Unaudited Financial Reports, and internal and external audit reports were hosted on the project website. There was a shift to report-based disbursements under the additional financing. Also, the Project Management Unit took actions to strengthen the monitoring of non-governmental organizations' contracts by holding regular annual performance reviews, including cost elements, before the renewal of contracts.

Procurement. Procurement activities were under the overall direction of the Project Director. The Project Management Unit coordinated all procurements, and was directly responsible for procuring consultancy services. The Public Works Department of the state government was the implementing agency for civil works under the overall monitoring of the Project Management Unit, and the Tamil Nadu Medical Services Corporation procured all equipment and goods. At appraisal, the procurement risk was deemed to be moderate. A procurement plan for the first 18 months was agreed prior to project approval. Under the AF, the Electronics Corporation of Tamil Nadu was the procurement agent for information technology hardware and associated supplies and services for the Health Management Information System. The Bank conducted regular ex-post procurement reviews and the Project Management Unit took actions to address arising issues. Procurement delays were faced throughout the implementation period, but by project closing, all



procurement activities were satisfactorily completed.

c. Unintended impacts (Positive or Negative)

An unintended positive impact is that the project facilitated the rolling out of the state-wide Health Insurance Scheme of the Chief Minister in 2009, as the project provided managerial support for the scheme.

d. Other

12. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Highly Satisfactory	Satisfactory	The ICRR rates the objective "to improve the effectiveness of the health system" as Substantial under both original and revised objectives because it was achieved, but with some shortcomings, while the ICR rates Efficacy as Substantial under the original objectives, and High under the revised objectives. Both ICRR and ICR rate relevance of objectives and design as High under the original and revised objectives. The ICRR rates efficiency as Substantial because the project interventions were cost-effective, but with moderate shortcomings in the efficiency of implementation, while the ICR rates efficiency as Substantial under the original objectives, and High under the revised objectives.
Risk to Development	Negligible	Negligible	---



Outcome			
Bank Performance	Highly Satisfactory	Satisfactory	There is no actual disagreement. If the ICR had aggregated correctly its sub-ratings (of Satisfactory for Quality at Entry and Highly Satisfactory for Quality of Supervision) as per guidelines, the ICR's Bank Performance rating would also have been Satisfactory.
Borrower Performance	Highly Satisfactory	Satisfactory	There is no actual disagreement. If the ICR had aggregated correctly its sub-ratings (of Highly Satisfactory for Government Performance and Satisfactory for Implementing Agency Performance) as per guidelines, the ICR's overall Borrower Performance rating would also have been Satisfactory.
Quality of ICR		Substantial	---

Note

When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006.

The "Reason for Disagreement/Comments" column could cross-reference other sections of the ICR Review, as appropriate.

13. Lessons

The project provided a number of lessons (ICR, pp. 43-46), and the following lessons are drawn from the ICR and adapted by IEG:

- **Careful phasing and sequencing of activities, rather than trying to implement everything at once, helps in dealing with the complexities of health system strengthening.** At times, better sequencing would have benefited the project. For example, the gains made from fast-responding emergency transport services were diminished by the low capacity and quality of care upon arrival at the health care facility.
- **Well-evaluated pilots contribute to the design of effective non-communicable disease prevention and control.** Before launching large scale interventions, the pilots demonstrated what was technically possible in terms of staff and system capacity considerations, what was likely to be cost-effective, and what were the most important elements of the program that allowed reaching a consensus on its scope.
- **Behavior change efforts are more effective when both supply and demand aspects are considered.** The project made skillful use of information, education and communication, and behavior change



communication to promote the demand and use of health care services, including in tribal populations.

- **Infection control and health care waste management are more effectively addressed at the sectoral level as a whole, rather than under a confined project-specific scope.** This approach was adopted under the project, enabling the Department of Health to rely on municipal authorities for regular quality assurance of the private sector disposal facilities, and ensuring benefits for the whole sector in Tamil Nadu.

14. Assessment Recommended?

No

15. Comments on Quality of ICR

The ICR presents well-argued analysis. It is results-oriented. It is thorough and systematic in its assessment of the project experience. The ICR is commendable for discussing contextual elements outside the project, and that have affected initial progress, such as the Tsunami emergency. The quality of the evidence in demonstrating improved effectiveness of the health system is adequate overall. The report identifies useful lessons derived from project experience. Overall, the ICR is internally consistent. At times, the ICR's narrative digresses and provides lengthy implementation details that unnecessarily extend its length to 46 pages. The ICR has thoughtfully endeavored to assess health system performance using the flagship framework for strengthening health systems, but some elements of this framework extended beyond the project's commitments as defined in the Financing Agreement. The overall quality of the report is rated Substantial.

a. Quality of ICR Rating

Substantial