People's Republic of China

Ex-Post Evaluation of Technical Cooperation Project
"Project for Surveillance and Control of Vaccine-Preventable Diseases"

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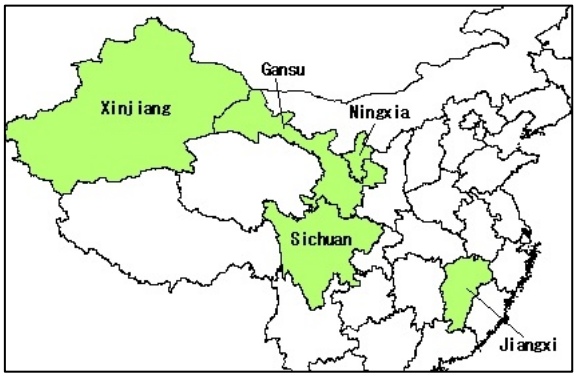
0. Summary

The Project aimed at improving the immunization rate through improvement of the infectious disease control service, thereby contributing to the reduction of the incidence of infectious diseases and improving the health of children in five provinces/autonomous regions in the central and western parts of China.

The improvement of infectious disease control through the strict enforcement of immunization conforms to the importance and needs of the relevant policies of China as well as Japan's ODA policy, indicating the high level of relevance of the Project. There is no doubt that infectious disease control has generally improved in every target province/autonomous region as illustrated by increased immunization rate. However, there are some unachieved issues in some provinces and the incidence of measles has not yet reached the target. Moreover, details of the situation of hepatitis B and Japanese encephalitis are unavailable for some provinces. It is apparent that the activities in the first half of the project period made a certain contribution towards the realization of the project purpose. Meanwhile, checking of immunization records and supplemental immunization conducted in the second half of the project period made a major contribution in Jiangxi and Gansu Provinces but their contribution in the remaining Sichuan Province and Xinjiang and Ningxia Autonomous Regions could not be clearly determined. Accordingly, the general effectiveness/impacts of the Project are judged to be fair. The project period was within the planned period but the project cost exceeded the planned cost, making the efficiency of the Project fair. The sustainability of the project effects is high as there appear to be no problems regarding sustainability in relation to the policy, organization, and technical and financial requirements.

In light of the above, the Project is evaluated as satisfactory.

1. Project Description



Project Locations

Immunization Inspection Records by child
(At a primary school in Gansu Province)

1.1 Background

The Government of the People's Republic of China (hereinafter referred to as "China") began the implementation of the Expanded Program on Immunization (EPI) in 1978 and the EPI has played a major role in the control of vaccine-preventable infectious diseases. In subsequent years, however, there has been a growing economic gap between urban areas and rural areas in

China, in turn leading to an increased potential risk of the spread of infectious diseases in rural areas because of the insufficient surveillance capacity as well as inadequate EPI implementation system in rural areas. At the Ministerial Conference of the WHO Western Pacific Region (WPRO) held in 2005, it was agreed to sustain polio-free status while seeking the elimination of measles and control of hepatitis B by 2012. To achieve these public health goals, the Government of China found it particularly necessary to improve the immunization service in rural areas.

Against this background, JICA decided to provide Japanese ODA to improve the level of surveillance and quality of the immunization service targeting four vaccine-preventable diseases, i.e. polio, measles, hepatitis B and Japanese encephalitis, in five provinces/autonomous regions (Jiangxi Province, Sichuan Province, Gansu Province, Ningxia Hui Autonomous Region and Xinjiang Uygur Autonomous Region) in the central and western parts of China. A technical cooperation project (the Project) which is the subject of the present ex-post evaluation study began in December, 2006.

Because of the trend of persisting incidence of measles in the period after the commencement of the Project, it was decided to focus on the selection of and concentration on suitable activities, especially those related to the elimination of measles, in the second half of the project period. To be more precise, the Project focused on checking the immunization status of pupils at the time of their entry to kindergarten or primary school among pupils enrolling at kindergarten or primary school using their immunization records and conducting supplemental immunization when necessary (hereinafter referred to as “checking of immunization records and supplemental immunization”) for the purpose of improving the immunization rate through the elimination of non-immunized pupils.

1.2 Project Outline

Overall Goal		The health for children is improved in the five target provinces and autonomous regions through the control of diseases associated to the Project.
Project Purpose		The level of surveillance and the quality of immunization service are improved in the five target provinces and autonomous regions in the Project.
Outputs	Output 1	Field surveillance, including regular monitoring, monitoring and supervision, and reporting system, is strengthened.
	Output 2	Network for polio laboratories is strengthened, diagnostic level of measles laboratories at each administrative level is improved, and cooperation to Japanese encephalitis laboratories is maintained.
	Output 3	The system for linkage and communication with other organizations related to EPI is established.
	Output 4	The immunization service is improved.
	Output 5	The activities for education and advocacy related to immunization are enhanced.
Total cost (Japanese Side)		594 million yen
Period of Cooperation		December, 2006 to December, 2011 (Follow-up cooperation: January, 2012 to March, 2012 and March, 2013)
Implementing Agency		• Ministry of Public Health* • Chinese Center for Disease Control and Prevention (CCDC) • Public Health Bureau and Center for Disease Control and

	Prevention (CDC) of the target provinces and autonomous regions *The Ministry of Public Health was reorganized as the National Health and Family Planning Commission (NHFPC) in 2013 following the reorganization of Chinese government ministries.
Other Relevant Agencies/Organizations	CDC and Bureau of Education in the pilot counties (Nanfeng County and Shanggao County in Jiangxi Province; Lu County and Lezhi County in Sichuan Province; Anding District and Qingcheng County in Gansu Province; Longde County and Haiyuan County if the Ningxia Hui Autonomous Region; Jimisar (Jimusaer) County and Toqsu (Xinhe) County in the Xinjiang Uygur Autonomous Region)
Supporting Agency/Organization in Japan	• National Institute of Infectious Diseases (NIID) • National Center for Global Health and Medicine (NCGM)
Related Projects	(Technical Cooperation) • Polio Control Project: 1991 – 1999 • Expanded Program on Immunization Strengthening Project: 2000 – 2005 (Loan) • Public Health Infrastructure Facility Improvement Project: L/A signed in 2004 (Grant Aid) • Project for the Eradication of Poliomyelitis (three phases: 1993, 1994 and 1995) • Project for Improvement of Equipment forImmunization System: 1996 • Project for Virus Examination Equipment Supply: 1997 • Immunization Expansion Program: 1999 • Project for Promotion of the Prevention of Infectious Diseases in Seven Western Provinces: 2002 (Other International Organizations and Aid Organizations, etc.) • World Health Organization (WHO): poliomyelitis eradication, measles elimination and hepatitis B control • United Nations Children's Fund (UNICEF): policy dialogue at the government level, improvement of the routine immunization regime and immunization of children • US Center for Disease Control (USCDC): enhanced measles immunization campaign • Global Alliance for Vaccines and Immunization (GAVI): supply of hepatitis B vaccine and policy support, etc. • Program for Appropriate Technology in Health (PATH): cooperation regarding hepatitis B and Japanese encephalitis • World Bank: support for the surveillance and control of vaccine-preventable diseases • KfW Bankengruppe: health Program in eight western provinces (support for equipment supply to CDCs and hospitals)

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement Status of Project Purpose at the Time of the Terminal Evaluation

The terminal evaluation report concluded that "the prospect of achieving the project purpose was high because ① the reported immunization rate was high for polio, measles and hepatitis B and the surveillance of polio and measles had been properly conducted and ② the implementation of the checking of immunization records and supplemental immunization had increased the immunization rate for polio, measles, Japanese encephalitis and hepatitis B among incompletely immunized children.

1.3.2 Achievement Status of Overall Goal at the time of the Terminal Evaluation

The terminal evaluation report concluded that EPI-related infectious diseases in the target provinces were effectively controlled and that it was expected that the standard of health of children would improve in view of the fact that the target diseases were adequately controlled (polio, hepatitis B and Japanese encephalitis) or reduced to the lowest level in history (measles).

1.3.3 Recommendations at the Time of the Terminal Evaluation

The terminal evaluation report put forward the following three recommendations.

(1) Enhancement of the effectiveness of the checking of immunization records and supplemental immunization of incompletely immunized children: ① clarification of where the responsibility lies at each stage of the work to smoothen the implementation process, ② strengthening of educational and advocacy (publicity) activities and ③ establishment and implementation of a method to monitor and evaluate the progress of the checking of immunization records and supplemental immunization

(2) Dissemination of the project outputs: ① facilitation of the dissemination of the model for the checking of immunization records and supplemental immunization to areas outside the pilot counties, ② examination of the prospect of disseminating the approaches and methods adopted to produce the project outputs to the rest of China and ③ securing of the necessary budget for the envisaged dissemination by local governments at all levels

(3) Utilization of the platform through collaboration between departments: promotion of inter-departmental collaboration and establishment of a relevant platform through the introduction of participatory workshops, project cycle management training and other attempts made under the Project.

2. Outline of the Evaluation Study

2.1 External Evaluator

Toshihiro Nishino, International Development Center of Japan Inc.

2.2 Duration of the Evaluation Study

Duration of the Study : August, 2014 – September, 2015

Duration of the Field Study: October to 28, 2014 –November 4, 2014 and
March 15 – March 25, 2015

2.3 Constraints during the Evaluation Study

This ex-post evaluation study experienced several constraints listed in the table below during the field surveys because of the ongoing process of administrative reform which affected the implementing agencies in China (inauguration of the National Health and Family Planning Commission through the merger of the Ministry of Public Health and the National Population and Family Planning Commission and organizational reform at the local government level). Consequently, the evaluator was unable to obtain detailed information on the present state of

immunization, etc. in Sichuan Province, Ningxia Hui Autonomous Region and Xinjiang Uygur Autonomous Region not visited during the field survey.

Component	Constraints
Field Survey	It was planned for the evaluator to visit the five target provinces/autonomous regions (including five pilot counties) during the first field survey period along with an on-site visit to the remaining five pilot counties by a local consultant. However, only Jiangxi Province and Gansu Province (including two pilot counties) were actually visited. Moreover, the planned interviews with those involved in the Project at the central government level (NHFPC) did not materialize.
Questionnaire Survey and Beneficiaries Survey	The evaluator originally planned to conduct a questionnaire survey with the implementing agencies and people concerned and a beneficiaries survey with people in the participating townships/villages (lower end administrative bodies of county-class cities with multiple administrative villages below them) during the Project. However, neither survey was conducted (only some data for quantitative indicators was obtained).

As the indicator for the PDM and project purpose, the surveyed immunization rate estimated on the basis of the actual interview results is used for this report instead of the reported immunization rate because of the doubtful accuracy of the latter despite it being an official figure. For this ex-post evaluation, the surveyed immunization rate by disease provided by individual provinces/autonomous regions is used to determine the progress of immunization, etc. However, the warning of a Japanese expert involved in the Project that the surveyed immunization rate may not be very accurate in some areas because of the possibility of the exclusion of fluid population in the target population for the immunization rate survey and also because of the possibility of regional differences in the reliability of random sampling must be noted.

3. Results of the Evaluation (Overall Rating: B[1])

3.1 Relevance (Rating: ③[2])

3.1.1 Relevance to the Development Plan of China

In its 11th Five Year Guideline for Economic and Social Development (2006 – 2010) which was China's national development plan at the time of the ex-ante evaluation of the Project, the Government of China called for immunization rate of 90% or higher through EPI for children, control of epidemics of serious infectious diseases and the development of rural health services, including the improvement of township and village clinics offering routine health care for local residents, as part of its efforts to improve the situation in rural areas. Meanwhile, the China National Program for Child Development (2001 – 2010) adopted such targets as the achievement of immunization rate of 90% at the township/village level and the inclusion of hepatitis B on the list of target diseases for regular immunization among the policies designed to strengthen the immunization regime and control of vaccine-preventable diseases.

The 12th Five Year Guideline for Economic and Social Development (2011 – 2015) which was in progress at the time of project completion clearly stated such targets as "the development of professional public health care networks to prevent and control serious diseases", "strengthening of the capacity to prevent serious infections and endemic diseases and to deal with outbreaks" and "the establishment of emergency rural medical care networks and a shift

[1] A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory
[2] ③: High, ② Fair, ① Low

towards universal access to health education" in Chapter 34: Improvement of Basic Health Care System.

The 12th Five Year Plan for Health Sector Development (2011 – 2015), which is the detailed development plan for the health sector in China, called for conscious efforts to regain and maintain polio-free status, to achieve measles elimination and to strengthen hepatitis B immunization among the priority population. Furthermore, the China National Program for Child Development (2011 – 2020) lists "the control of common childhood diseases and serious infectious diseases, including HIV/AIDS, syphilis, tuberculosis and hepatitis B" and "the increase of the immunization rate to above 95% at the township level as part of the national immunization plan" among the major objectives of the strategy for children and health. Provinces, including the five target provinces/autonomous regions of the Project, formulate their own programs basically in line with the above-mentioned national programs/guidelines.

3.1.2 Relevance to the Development Needs of China

At the time of the ex-ante evaluation of the Project, the incidence of measles and hepatitis B patients in China accounted for approximately half of the incidence in the Western Pacific Region and some 30% of the global patients respectively. There was a major potential risk of the spread of infection in rural areas in China because of the insufficient capacity for the swift as well as accurate diagnosis of incidents involving infectious diseases and of the planning and implementation of countermeasures based on the accurate assessment of the situation of the spread of such diseases. To make matters worse, the central and western provinces in China lacked both a strong financial base and sufficient manpower to effectively deal with outbreaks of infectious diseases. Under these circumstances, these provinces faced such critical issues as (i) a high level of incidence of various diseases above the national average or a high position in the provincial incidence ranking and (ii) a high risk of the incursion of wild polio strains from neighboring countries (India, Pakistan, etc.) where polio was endemic. These provinces were, therefore, urgently required to implement a focused approach to improve the situation.

Even at the time of this ex-post evaluation, while a report for the China National Program for Child Development (2011 – 2020) puts the immunization rate for the four target diseases at 90% or high, it identifies gaps in terms of the service level between urban and rural areas and between different provinces. Therefore, the elimination of these gaps is an urgent task. Particularly urgent is improvement of the immunization rate in the central and western provinces, rural areas and areas of minority ethnic groups and among the fluid population. As such, there is still a strong need for improvement of the immunization rate. There was an incident of imported polio from Pakistan to the Xinjiang Uygur Autonomous Region (two people died out of 20 confirmed cases, including those in Beijing), exposing the risk faced by China of the importation of polio from neighboring non polio-free countries. Under these circumstances, Japanese encephalitis was newly added to the list of subject diseases for immunization in the National Immunization Plan of China in 2010, resulting in all four target infectious diseases of the Project being on this list. This addition illustrates the continuing importance of implementing vaccine-preventable disease control measures in China, especially the four target infectious diseases of the Project.

The background for the prioritization of the checking of immunization records and supplemental immunization in the second half of the project period was the urgent need to establish a concrete method to implement these activities as the Regulations on Administration of Vaccine Circulation and Immunization promulgated by the State Council of China in 2005 failed to stipulate detailed rules, methods, etc. despite its obvious call for the implementation of the activities in question. The prioritization of these activities reflected the need to achieve the project purpose, especially the improvement of measles control, and this emphasis was clearly in line with the development needs of China.

3.1.3 Relevance to Japan's ODA Policy

The Economic Cooperation Program for China (2001) which spelled out Japan's basic ODA principles for China at the time of the ex-ante evaluation of the Project listed cooperation for infectious disease control as part of the cooperation designed to resolve global issues. Meanwhile, the Country Assistance Program for China prepared by the Ministry of Foreign Affairs (MoFA) in 2001 referred to "cooperation to deal with global issues, such as environmental issues" as one of the economic cooperation policies by priority and theme because of the potential direct impact on such issues faced by China on Japan. One example of such issues was infectious disease control. The MoFA's ODA Country Databook (2006) included infectious disease control as one of the priority issues for China. Based on the MoFA's Country Assistance Program for China, JICA endorsed cooperation to deal with global issues, such as environmental issues, as one of its three priority areas for assistance for China and infectious disease control was given as a concrete example.

At the WPRO Ministerial Conference in 2005 in which Japan participated, agreement was reached on the maintenance of the polio-free status, elimination of measles and control of hepatitis B by 2012.

This project was highly relevant to country's development plan and development needs, as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Effectiveness and Impact[3] (Rating: ②)

3.2.1 Effectiveness

3.2.1.1 Project Output

Here, the state of achievement of the five planned outputs at the time of project completion (2011) and ex-post evaluation (2014) is analyzed.

Output 1: Field surveillance, including regular monitoring, monitoring and supervision and the reporting system, is strengthened.

In Jiangxi and Gansu Provinces where the field survey was conducted, the development of human resources in the county, township and village-level health sectors under the Project, etc. led to improved awareness and knowledge. Apart from the official field surveillance by the provincial, municipal and county governments and CDCs, other achievements included ① proper understanding of the situation using various opportunities, including the occasion of vaccine supply and acquisition, ② strengthening of the understanding of the situation at the village level by village doctors and ③ strict implementation of the periodic surveillance of hospitals above a certain size. As the reporting level has been improved, it can be concluded that field surveillance has been strengthened in general.

Although the detailed situation of the another province and two autonomous regions which were not visited is unclear, an incident of imported polio in 2011 in the Xinjiang Uygur Autonomous Region where the development of the field surveillance system is believed to lag behind that of the other target provinces was swiftly discovered and dealt with and was successfully contained. This fact suggests that the field surveillance had been strengthened to a certain level in all of the five target provinces by the time of project completion.

Output 2: The network for polio laboratories is strengthened, the diagnostic level of measles laboratories at each administrative level is improved and cooperation for Japanese encephalitis laboratories is maintained.

The capability of laboratory technicians can be determined based on the results of ① the WHO proficiency test and ② WHO inspection. Apart from one item of the WHO inspection results for polio laboratories (the annual NPEV isolation rate for Gansu, Ningxia and Xinjiang),

[3] Sub-rating for Effectiveness is to be put with consideration of Impact.

all laboratories in the five target provinces passed the relevant criteria at the time of both project completion (2011) and ex-post evaluation (2014). Because of the installation of equipment by the Government of China along with the intense learning and actual application of concrete techniques, know-how, etc. including the IgM ELISA testing method (measles virus antibody testing method), transferred under the Project, it is now possible to diagnose measles at county (city) level laboratories. In the case of Japanese encephalitis laboratories, testing and inspection results against domestic criteria are used as important data to judge the capability of laboratory technicians in Jiangxi Province where testing and inspection by the WHO has not been conducted and it has been confirmed that the said criteria are met.

Interviews with former Japanese experts and CCDC officials found that when an incident of imported polio was discovered in Xinjiang in 2011, a regional laboratory which was one of the targets for assistance under the Project first discovered the virus. The same laboratory efficiently conducted the testing of patient samples as well as samples from the neighboring area and monitoring of the local environment, thereby contributing to preventing the spread of polio.

The transmission of local data to CCDC for integration and sharing has strengthened the laboratory network and the system to discover and deal with local abnormal incidents has been improved.

Output 3: A system for linkage and communication with domestic and overseas organizations related to EPI is established.

The increased awareness of the importance of field surveillance among the people concerned has led to increased awareness of the need to strengthen the coordination between the people concerned as well as stakeholder organizations, resulting in a much strengthened inter-sectoral coordination system in Jiangxi and Gansu Provinces. Many provincial and county CDC officials have expressed the shared opinion that the sharing of experience between different provinces and also between cities and counties in each province through the Project has greatly improved the analysis of the current state of EPI and related activities. Further attempts to strengthen the coordination system with the relevant domestic and overseas organizations have also been made through participation in “conferences with international organizations” and “WHO reviews of polio laboratories”.

For the proper implementation of the checking of immunization records and supplemental immunization, it is essential for a coordination system to be established between the health sector and education sector. While there was a government policy to promote such work, no concrete division of work or the work flow was clearly stated. Because of this, efforts were made in the course of the Project to examine and establish a trial coordination system between these two sectors. Given the fact that the directly targeted areas of the Project were 10 pilot counties in five provinces, the establishment of the said coordination system at the time of project completion was restricted to these pilot counties. In Jiangxi and Gansu Provinces, the outcomes of the Project in the pilot counties were disseminated throughout the province in the post-project period in an attempt to establish a province-wide coordination system between the health sector and education sector.

Output 4: The immunization service is improved.

Following an official notice called “the implementation policy for the checking of immunization records at the time of enrollment in kindergartens and primary schools” which was issued through the Project in 2009 and which indicated the mission, procedures and responsibilities of the individual organizations involved, the work in question was promoted throughout the five provinces. At the time of project completion, although the application of the outcomes (regarding how to proceed with inter-sectoral coordination between the health sector and education sector, how to educate/train the people concerned and others) in the pilot counties was limited, the completed checking of immunization records exceeded 95% for both schools and pupils in all five provinces.

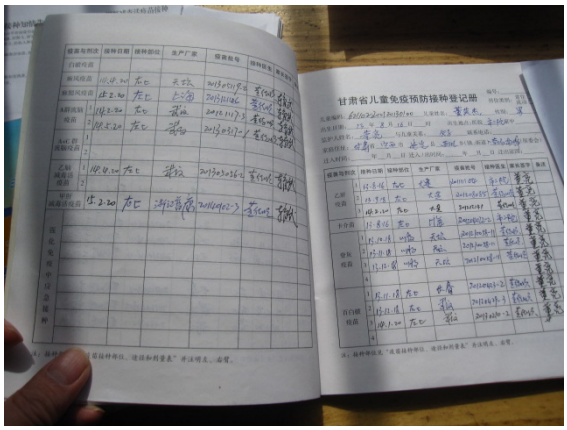
Table 1 Checking of Immunization Records by School and by Pupil in Each Target Province (%)

	Jiangxi		Sichuan		Gansu		Ningxia		Xinjiang	
	School Check Ratio	Pupil Check Ratio	School Check Ratio	Pupil Check Ratio	School Check Ratio	Pupil Check Ratio	School Check Ratio	Pupil Check Ratio	School Check Ratio	Pupil Check Ratio
2008	94.6	93.3	92.0	91.1	92.2	90.3	99.8	99.3	97.9	95.1
2011	99.0	97.7	-	-	95.1	97.9	100.0	99.7	-	-
2012	99.4	98.9	99.2	99.0	99.6	98.9	100.0	99.9	99.8	98.7
2013	99.3	98.9	99.9	99.3	99.9	99.4	100.0	100.0	99.7	99.9
2014	100.0	99.0	-	-	99.9	99.5	100.0	100.0	99.9	99.0

Source: Provincial CDCs

In 2011 when the Project was completed, a notice on the checking of immunization records and supplemental immunization at the time of enrolment in kindergartens and primary schools was issued to illustrate the more concrete method and management format for the work in Jiangxi and Gansu Provinces with a view to disseminating the outcomes in the pilot counties to the entire province. In Gansu Province, the practice of checking spread to almost all schools in the province, and the checking ratio of school records was increased from 95.1% in 2011 to 99.6% in 2012. It is clear that this notice led to an improved checking ratio at the provincial level (more than 99% at the time of the ex-post evaluation in 2014). The improvement of the checking ratio was also evident in other three provinces. In all five target provinces, the checking ratio by school or pupil was around 99% or more at the time of the ex-post evaluation.

In Gansu Province (pilot counties), the evaluator confirmed that the checking of immunization records and supplemental immunization have been thoroughly conducted at kindergartens, primary schools, village clinics, etc. in accordance with the said notice and that records of the immunization history of individual pupils and other relevant matters have been properly compiled and kept.



Immunization history of individual pupils (kept at a village clinic in Gansu Province)

Township hospital where immunization is conducted (Nanfeng County, Jiangxi Province)

Other activities designed to improve the immunization service under the Project included “the strengthening of vaccine control” and “the improvement of measures to control adverse events following immunization (AEFI)”. In the case of the former, storage, transportation, etc. were properly implemented in accordance with the type of vaccine by the time of the completion of the Project. In Gansu Province (pilot counties), a refrigerator for vaccine storage which had previously been used at only township hospitals or higher level hospitals was installed at village clinics and further improvement was witnessed at the time of the ex-post evaluation. In regard to the improvement of measures to control AEFI, the positive outcomes of

the training in Japan were somewhat limited because of its timing immediately before project completion. Nevertheless, the relevant measures have been implemented in the post-project period to exploit the positive outcomes of the training and the capacity to deal with AEFI has been improved, particularly in rural areas.

Output 5: The activities for education and advocacy related to immunization are enhanced.

In the course of the Project, publicity posters and pamphlets and educational VCD[4] were printed/created and distributed with due consideration given to the cultural and social background of each target province when their contents were determined. Such media as TV commercials and short message services were also used. The education and enlightenment activities targeting teachers have also been strengthened.

In both Jiangxi and Gansu Provinces, strengthened and continuing educational and enlightenment activities on immunization were observed at the time of the ex-post evaluation. An increased budget for infectious disease control means expanded educational and enlightenment activities at the township/village level. New approaches have been made, including training on infectious diseases for students of teacher training colleges. The social awareness of infectious disease control and immunization has markedly improved, partly because of ① the increasing interest in child health among parents as a result of China's economic development and ② the strong social impact of such infectious diseases as SARS and avian flu in China.

Notice board publicizing infectious disease control measures (at a village clinic in Gansu Province)

Educational pamphlets on infectious disease control measures (at a village clinic in Gansu Province)

3.2.1.2 Achievement of Project Purpose

The indicators (by disease) related to the project purpose and the actual performance regarding each indicator are shown in Table 2. The achievement level of each indicator by province is shown in Table 3.

[4] A VCD (video compact disc) is a video recording medium popularly used in China.

Table 2 Achievement of the Project Purpose

Project Purpose	Indicator	Actual Performance
The level of surveillance and the quality of the immunization service is improved in the five target provinces and autonomous regions of the Project.	(Polio) 1-1: The surveyed immunization rate among children in rural areas of the target provinces/autonomous regions has achieved and maintained a target figure of 90% or higher.	• The surveyed immunization rate for polio in 2011 (at the time of project completion) exceeds the 90% level except in Gansu Province where the figure was 87%. • Immunization performance data for rural areas is only available for Jiangxi, Ningxia and Xinjiang. The 2011 performance level exceeds 90% in all of these provinces (98% or higher in 2013 onwards; see Table 4).
	(Polio) 1-2: The surveillance of AFP (acute flaccid paralysis) is maintained.	• The performance data for 2011 indicate a generally high level of performance for all of the relevant indicators, including the rate of timely investigation within 48 hours of initial reporting. In Xinjiang, the performance values have not sufficiently improved for "the rate of collecting two stool samples within 14 days" and "the rate of collecting acceptable stool samples". • The performance data for 2012 onwards show that the values for the relevant indicators have been lower in the Ningxia and Xinjiang compared to the other target provinces (Table 5).
	(Measles) 2-1: The immunization of children in the target provinces/autonomous regions has achieved and maintained the surveyed immunization rate of 95% or higher.	• The surveyed immunization rate for measles in 2011 is below 95% in Sichuan (measles vaccine 2), Ningxia (measles vaccine 1) and Xinjiang (measles vaccine 1 and 2). • The performance data for 2012 onwards is less than 95% in the case of measles immunization No. 1 in 2012 and measles immunization No. 2 in 2013 and 2014 in Sichuan.
	(Measles) 2-2: Non-immunization cases are traced and supplemental immunization is conducted.	• The 2011 performance data put the rate of uncompleted supplemental immunization at less than 5% in all of the target provinces except Jiangxi (10.5%). • The performance in 2012 onwards has generally maintained a level of 5% or less in Jiangxi, Gansu and Sichuan but shows much fluctuation from one year to another in Ningxia and Xinjiang. The actual figures for 2013 for Ningxia and for 2014 for Xinjiang are above 10% (Table 7).
	(Hepatitis B) 3-1: The surveyed thrice immunization rate for newly born babies in the target provinces/autonomous regions has achieved and maintained the target rate of approximately 90%.	• The 2011 performance for the surveyed thrice immunization rate for newly born babies exceeds 90% except in Ningxia where the figure is 87.4%. • In 2012 onwards, the actual performance has exceeded 96% in all provinces (Table 8).
	(Hepatitis B)	• The 2011 performance exceeds 90% except in

	3-2: The initial immunization rate for newly born babies within 24 hours of birth in hospital is 90% or higher in the target provinces/autonomous regions.	Xinjiang where the figure is 65.1%. • In 2012 onwards, the surveyed immunization rate has exceeded 93% in all provinces (Table 8).
	(Japanese encephalitis) 4-1: The skills and knowledge associated with laboratory diagnosis is improved at all CDCs in the target provinces (Sichuan and Jiangxi).	• The skills and knowledge for laboratory diagnosis met the criteria at the time of both project completion (2011) and ex-post evaluation (2014), indicating their satisfactory level (Jiangxi). The situation in Sichuan is unknown.

Table 3 Achievement Level of the Project Purpose by Province and Indicator
(At the Time of Project Completion and Ex-Post Evaluation)

Disease	Indicator		Jiangxi	Sichuan	Gansu	Ningxia	Xinjiang	Overall (by Indicator)	Overall (by Disease)
Polio	1-1：Surveyed immunization rate of 90% or higher for rural children	Comple-tion	○	○	△	○	○	○	○ (△)
		Ex-post	○	○	○	○	○	○	
	1-2：Maintenance of AFP surveillance	Comple-tion	○	○	○	○	×	○	
		Ex-post	○	○	○	×	×	△	
Measles	2-1：Surveyed immunization rate for children is 95% or higher	Comple-tion	○	△	○	△	×	△	△ (△)
		Ex-post	○	△	○	○	○	○	
	2-2：Tracing of non-immunization cases and implementation of supplemental immunization	Comple-tion	△	○	○	○	○	○	
		Ex-post	○	○	○	×	×	△	
Hepatitis B	3-1：Surveyed thrice immunization rate for newly born babies is approximately 90%	Comple-tion	○	○	○	△	○	○	○ (○)
		Ex-post	○	○	○	○	○	○	
	3-2：Initial immunization rate for newly born babies within 24 hours of birth is 90% or higher	Comple-tion	○	○	○	○	×	○	
		Ex-post	○	○	○	○	○	○	
Japanese encephalitis	4-1：Improvement of laboratory diagnosis skills and knowledge	Comple-tion	○	?	-	-	-	△?	△? (△?)
		Ex-post	○	?	-	-	-	△?	

Notes
1) ○ Achieved; △ Mostly Achieved, × Unachieved
2) "Ex-post" means at the time of the ex-post evaluation.
3) The symbols in parentheses in the "Overall (by disease)" column indicate the achievement level at the time of the ex-post evaluation.
Source: Prepared by the evaluator using materials supplied by provincial CDCs and the field survey findings.

The state of achievement of the project purpose at the time of project completion (2011) and ex-post evaluation (2014) is analyzed next.

(1) Polio

The surveyed immunization rate in the target provinces is shown in Table 4.

Table 4 Historical Changes of the Surveyed Immunization Rate for Polio in the Target Provinces/Autonomous Regions

Target	Year	Jiangxi	Sichuan	Gansu	Ningxia	Xinjiang
Overall	2011	99.3%	97.2%	87.3%	100.0%	93.7%
	2012	99.7%	98.6%	99.0%	-	-
	2013	99.6%	97.3%	97.7%	100.0%	99.9%
	2014	98.9%	97.2%	-	-	-
Rural	2011	99.7%	-	-	100.0%	93.7%
	2012	99.7%	-	-	-	-
	2013	99.4%	-	-	100.0%	99.9%
	2014	98.9%	-	-	-	-

Source: Provincial CDCs

As the promotion of infectious disease control and EPI through the Project as well as other efforts strengthened such related services as surveillance and laboratory diagnosis, the surveyed overall immunization rate for the target provinces in 2011 (when the Project was completed) exceeded the target 90% except in Gansu (87.3%), generally achieving the target for this indicator. In Jiangxi, Sichuan and Ningxia, the figure was as high as more than 97%. The relevant performance in 2012 onwards has shown further improvement as the rate has been above 97% in all provinces, including Gansu where the target was not met in 2011. As far as the polio immunization performance in rural areas is concerned, data is available for only three provinces, i.e. Jiangxi, Ningxia and Xinjiang. As in the case of the overall performance figures, the 2011 performance exceeded 90% (the target figure) in each of these provinces. From 2013 onwards, a very high rate of 98% or above has been maintained.

The implementation situation of AFP surveillance in the target provinces is shown in Table 5.

Table 5 Historical Changes of the AFP Surveillance Situation in the Target Provinces and Autonomous Regions

Province or Autonomous Regions	Year	Number of Reported AFP Incidents	Reported AFP Incidence (1/100,000)	Rate of Timely Investigation within 48 Hours of Reporting	Rate of Collecting Two Stool Samples within 14 Days	Rate of Collecting Acceptable Stool Samples	Rate of Timely Sending of Samples within 7 Days
Jiangxi	2011	186	1.91	98.9%	90.9%	90.9%	95.2%
	2012	185	1.87	100.0%	94.6%	94.6%	98.9%
	2013	192	1.95	100.0%	95.3%	94.8%	98.4%
	2014	186	1.91	100.0%	93.6%	91.9%	97.3%
Sichuan	2011	383	2.56	98.7%	95.6%	95.3%	99.5%
	2012	403	3.04	99.0%	94.0%	94.0%	93.2%
	2013	361	2.73	99.7%	96.1%	95.3%	96.6%
	2014	-	-	-	-	-	-
Gansu	2011	110	2.44	99.0%	89.0%	89.0%	99.0%
	2012	119	2.62	99.0%	93.0%	93.0%	98.0%
	2013	113	2.53	100.0%	88.0%	88.0%	100.0%
	2014	127	2.94	100.0%	92.0%	92.0%	94.0%

Ningxia	2011	35	2.49	100.0%	94.3%	94.3%	100.0%
	2012	23	1.71	100.0%	91.3%	91.3%	91.3%
	2013	20	1.49	100.0%	83.3%	83.3%	83.3%
	2014	35	2.63	100.0%	82.9%	82.9%	97.1%
Xinjiang	2011	165	3.66	100.0%	74.0%	74.0%	92.0%
	2012	145	3.22	97.7%	85.5%	85.5%	90.9%
	2013	87	1.92	98.8%	90.1%	89.6%	83.7%
	2014	101	2.23	98.9%	84.0%	78.2%	87.1%

Source: Provincial CDCs

The level of AFP surveillance is believed to be determined using such indicators as ① the rate of timely investigation within 48 hours of initial reporting, ② the rate of collecting two stool samples within 14 days, ③ the rate of collecting acceptable stool samples and ④ the rate of timely sending samples within 7 days as shown in Table 5. The 2011 performance data for these indicators were generally high although the figures for indicators ② and ③ in Xinjiang were more than 15% lower than the corresponding performance levels in other provinces, suggesting the insufficient state of achievement in this particular autonomous region. However, when an incident of imported polio occurred in Xinjiang in 2011, the surveillance as well as laboratory diagnosis systems functioned well and the spread of polio was prevented. This fact indicates that a certain level of AFP surveillance in Xinjiang has beenmaintained. Since 2012, the performance level of these four indictors have been continuously almost 90% or higher in Jiangxi, Sichuan and Gansu Provinces but figures below 90% have been recorded in the Ningxia and Xinjiang Autonomous Regions, particularly for indicators ② (rate of collecting two stool samples within 14 days) and ③ (rate of collecting acceptable stool samples), suggesting the slow progress of the improvement of AFP surveillance. The reasons behind such slow progress of improvement in these two autonomous regions are unclear as the field survey for this ex-post evaluation could not take place in these autonomous regions.

Based on the above, the immunization rate and level of AFP surveillance for polio were found to have generally reached an adequate level. Therefore, the project purpose for polio was generally achieved. However, at the time of the ex-post evaluation, the level of AFP surveillance is found to be below the target level, failing to secure an adequate level to an extent in some provinces (Ningxia and Xinjiang Autonomous Regions).

(2) Measles

The surveyed measles immunization rate in the target provinces is shown in Table 6.

Table 6 Historical Changes of the Surveyed Immunization Rate for Measles in the Target Provinces/Autonomous Regions (%)

Year	Jiangxi		Sichuan		Gansu		Ningxia		Xinjiang	
	MV1	MV 2	MV 1	MV 2	MV 1	MV 2	MV 1	MV 2	MV 1	MV 2
2011	99.9	99.4	95.6	94.6	95.7	-	92.7	99.0	93.3	78.0
2012	96.8	96.9	94.5	95.8	97.5	-	-	-	-	-
2013	99.6	98.8	95.1	93.8	97.7	96.9	100.0	98.6	99.7	98.9
2014	98.7	97.2	95.9	93.7	-	-	-	-	-	-

Note: MV1 means the first measles vaccination (immunization) and MV2 means the second measles vaccination (immunization).

Source: Provincial CDCs

The surveyed immunization rate for measles in 2011 (at the time of project completion) fell short of the target rate of 95% in the case of either MV1 or MV2 or both in Sichuan Province and the Ningxia and Xinjiang Autonomous Regions. The situation of the second measles immunization in Gansu Province is unknown because of the lack of relevant data. The second measles immunization rate in Xinjiang of 78.0% was particularly low. Since 2012, the surveyed

immunization rate for measles has generally improved to 97% or more which is above the target rate of 95% in Jiangxi, Gansu, Ningxia and Xinjiang. In Sichuan Province, even though the surveyed rate has been around 95%, the overall improvement has been below that of other provinces. The rates of the first immunization in 2012 and the second immunization in 2013 and 2014 are all less than 95%. In the case of Gansu Province for example, the checking ratio of school records greatly improved from 95.1% in 2011 to 99.6% in 2012 as a result of dissemination of the work to check immunization records and supplementary immunization. As this example shows, the evaluator has been able to verify through the field survey that the province-wide dissemination of the said work has contributed to an improved immunization rate in Jiangxi and Gansu Provinces. The factors behind the data for the other provinces are unclear as the field survey was not conducted in these provinces.

Table 7 shows the state of the supplemental immunization of non-immunized children in the target provinces as this data is important for improvement of the immunization rate.

Table 7 State of Supplemental Immunization in the Non-Immunization Cases (Rate of Uncompleted Doses for Supplemental Immunization)

	Jiangxi	Sichuan	Gansu	Ningxia	Xinjiang
2011	10.5%	0.9%(2010)	2.5%	4.6%	3.1%
2012	4.1%	5.2%	1.2%	1.8%	1.2%
2013	2.6%	3.4%	1.5%	15.4%	2.3%
2014	2.5%	-	3.6%	4.2%	16.1%

Source: Provincial CDCs

The actual 2011 figure for the number of uncompleted doses [5] for supplemental immunization divided by the number of required doses for supplemental immunization (rate of uncompleted doses for supplemental immunization) in the case of the measles vaccine was good at less than 5% for all of the target provinces except Jiangxi Province where the figure was 10.5% (the figure for Sichuan Province was for 2010). Even in Jiangxi Province, the more recent figure was low at below 3% in 2009 and 2010. The performance level in 2012 onwards appears to vary depending on the year and province. The figure has generally been 5% or lower in Jiangxi, Gansu and Sichuan Provinces while greatly fluctuating in the Ningxia and Xinjiang Autonomous Regions from one year to another. A very high figure exceeding 15% was recorded for Ningxia in 2013 and for Xinjiang in 2014.

In Jiangxi and Gansu Provinces, the evaluator verified the situation where supplementary immunization is conducted not only for measles but also for a wide range of vaccine-preventable diseases as a result of appropriate follow-up for non-immunized children identified through the checking of immunization records and also for their parents. One such follow-up activity is that when immunization is difficult to conduct at hospitals, it is done by village doctors visiting the homes of children. Meanwhile, the exact situation and reasons for low supplementary immunization rate in Ningxia and Xinjiang Autonomous Regions are unclear.

The summary conclusion regarding the achievement of the project purpose in connection with measles is that the target immunization rate was not achieved in some provinces (Sichuan, Ningxia and Xinjiang) by the time of project completion. However, the subsequent improvement of the measles immunization rate has achieved the target immunization rate in all of the provinces by the time of the ex-post evaluation. Meanwhile, the rate of uncompleted does for supplemental immunization in Ningxia and Xinjiang was unsatisfactory in some years, posing a challenge. In short, it is fair to say that the project purpose has not been achieved in some aspects for measles.

[5] The number of doses means the number of immunizations.

(3) Hepatitis B

The performance indicators for hepatitis B immunization in the target provinces are ① the rate of first immunization within 24 hours of birth and ② the immunization process (three injections) completion rate. The actual figures by province are shown in Table 8.

Table 8 Historical Changes of the Surveyed Immunization Rate for Hepatitis B in the Target Provinces/Autonomous Regions (%)

Year	Rate of First Immunization within 24 Hours of Birth					Immunization Process (Three Injections) Completion Rate				
	Jiangxi	Sichuan	Gansu	Ningxia	Xinjiang	Jiangxi	Sichuan	Gansu	Ningxia	Xinjiang
2011	98.8	92.8	92.6	91.0	65.1	99.8	95.6	98.1	87.4	91.2
2012	96.0	94.6	94.4	-	-	100.0	97.2	99.3	-	-
2013	99.6	94.9	94.5	93.8	95.2	99.8	96.4	98.9	99.4	99.6
2014	93.4	94.9	-	-	-	98.0	96.3	-	-	-

Source: Provincial CDCs

The 2011 performance for these two indicators exceeded the target rate of 90% in all of the provinces except the rate of first immunization within 24 hours of birth in Xinjiang and the immunization process completion rate for Ningxia. In Xinjiang, the first immunization rate of 65.1% was some 25 points below the target rate of 90%, failing to achieve the required level. However, improvements were made in 2012 onwards and the target rate was achieved in all provinces.

The interviews conducted at the Gansu CDC found the opinion that although the situation of identifying and vaccinating babies born at home was not ideal before the Project, the strengthened surveillance through the Project made it possible to adequately identify newly born babies, resulting in a substantial improvement of the immunization rate for hepatitis B. As the identification of pregnant women is a key factor for an improved immunization rate for hepatitis B, it is inferred that strengthening of the surveillance in the target provinces, including the Ningxia and Xinjiang Autonomous Regions, greatly contributed to improving the said immunization rate.

In short, although the target immunization for hepatitis B was not achieved in some provinces (Ningxia and Xinjiang) by the time of the completion of the Project, the target rate was achieved in all provinces by the time of the ex-post evaluation.

(4) Japanese Encephalitis

The scope of the cooperation under the Project to combat Japanese encephalitis was limited, only featuring the strengthening of laboratories (Output 2) and the establishment of linkage and communication (coordination system) between organizations (Output 3) in Jiangxi and Sichuan. As a result, the relevant indicator was “the skills and knowledge for laboratory diagnosis at the provincial CDCs in the target provinces (Jiangxi and Sichuan) are improved” instead of “the immunization rate and others” which are related to the outcomes of the infectious disease control service and are adopted for other infectious diseases.

The results of interviews at the Jiangxi Provincial CDC suggest that the skills and knowledge for laboratory diagnosis in Jiangxi pass the relevant laboratory criteria in China at the time of both project completion (2011) and ex-post evaluation (2014) due to their strengthening under the Project as well as related projects of the Government of China. As such, the level of knowledge among laboratory technicians and the laboratory diagnosis skills in Jiangxi are satisfactory.

Based on the above, it is fair to say that the project purpose for Japanese encephalitis has been achieved in Jiangxi Province while the situation in Sichuan Province is unclear.

3.2.1.3 Contribution of the Project towards the Achievement of the Project purpose

The state of achievement of the project purpose is described in 3.2.1.2 above. Here, the contribution made by the Project is clarified.

In the first half of the project period, support activities were conducted in the five target provinces to improve five different types of services featuring four infectious diseases. In the second half, however, the target disease was narrowed down to measles in 10 pilot counties identified for the prioritized checking of immunization records and supplemental immunization. Because of this, the project contribution in the first half and second half is discussed separately here.

In connection with the contribution of the project-related activities in the first half of the project period, it is essential to note that a number of cooperation projects of other donors and international aid organizations and also relevant projects of the Government of China were implemented in this period in relation to the project purpose of "improving the level of surveillance and quality of the immunization service in the target provinces (the relevant indicator is an improved immunization rate for the target infectious diseases). The activities related to these projects were particularly strengthened in the implementation period of the Project based on the 11th Five Year Guideline for Economic and Social Development (2006 – 2010). One typical example is the strengthening of EPI based on the 2006 – 2012 National Action Plan for Measles Elimination and the National Plan for Hepatitis B Control and Treatment in 2006 to 2010. Another example is the budgetary expansion for the control of infectious diseases at such lower administrative levels as township and village based on the Subject Matters for a Fairer Basic Public Health Service, a document issued in line with the national policy of strengthening the public health service in local and rural areas.

Although the budget size of the Government of China for infectious disease control, etc., especially the budget allocated to controlling four infectious diseases in the target provinces of the Project, is unclear, a former Japanese expert involved in the Project put such budget at more than 1,000 times the budget for the Project. The activities in the first half of the project period achieved ① the strengthening of surveillance through human resources development, ② improvement of the technical level of diagnosis due to the improved skills of laboratory technicians and ③ realization of safe injections and improvement of the cold chain[6] due to improvement of the immunization service. These facts indicate that the activities in the first half of the project period made a certain contribution to the realization of the project purpose (of which the indicator is an improved immunization rate). However, it is fair to say that the overall improvement described here was the combined outcome of activities under the Project as well as other similar projects (especially those independently conducted by the Government of China).

In regard to the work of checking immunization records and supplementary immunization in the second half of the project period, the activities were prioritized with a view to adopting and promoting a single model featuring ① the establishment of a work implementation system, ② promotion of the linkage and communication between the health sector and the education sector, ③ training and human resources development to support various activities, ④ the introduction of the TCM (training cycle management) technique for human resources development and ⑤ the development and introduction of a maternal and child health handbook integrating the pregnancy health record, child health handbook and immunization record (in Nanfeng county in Jiangxi Province only).

There has been a conscious attempt to disseminate the positive outcomes of this work to all provinces in the post-project period. The situation of the province-wide dissemination (at the time of the ex-post evaluation) of such outcomes in Jiangxi and Gansu Provinces where the field survey for the ex-post evaluation was conducted is summarized in Table 9.

[6] A cold chain means the mode of (and equipment used for) physical distribution to keep pharmaceutical products consistently in a low temperature environment through the production, transportation and consumption processes.

Table 9 Main Components of the Checking of Immunization Records and Supplemental Immunization Work and Situation of Province-Wide Dissemination (Jiangxi and Gansu Provinces)

Main Components	Situation of Province-Wide Dissemination
(1) Establishment of the work implementation system (preparation of the work flow, clarification of the respective responsibilities of the health sector and the education sector, etc.)	○
(2) Promotion of the linkage and communication between the health sector and the education sector	○
(3) Training and human resources development to support various activities (human resources development at various levels in the health sector and the education sector)	○
(4) Development and utilization of teaching materials relating to training and human resources development (development of a manual for immunization records)	△
(5) Introduction of the TCM technique for human resources development (management cycle and participatory model)	×
(6) Development and introduction of a maternal and child health handbook integrating the pregnancy health record, child health handbook and immunization record	×

Note: ○: disseminated; △: partially disseminated; ×: not disseminated

Source: Prepared by the evaluator using reference materials provided by provincial CDCs and the field survey findings.

In regard to Components (1) and (2) in Table 9, the relevant matters were included in the "notice on the checking of immunization records and supplemental immunization at the time of enrolment in kindergarten and primary school" which was issued by provincial bureaus of health and education based on the experience of the pilot counties, prompting the provincial-wide dissemination of the positive results of the work. Similarly, Component (3) has been actively promoted at the provincial level. Interviewed officials of the Public Health Bureaus and CDCs, etc. of the two visited provinces positively evaluated the Project, saying that the utilization of the outputs of the Project had made it possible to uniformly as well as efficiently implement immunization-related work at the provincial level, facilitating ① the improvement of the system for linkage and communication between the health sector and the education sector (Output 3), ② strict enforcement of the checking of schools and children (Output 4), ③ strengthening of the field surveillance (Output 1) and ④ enhancement of the awareness of infectious disease control among parents and other people concerned (Output 5). As a result, checking of immunization records of individual pupils at schools and the supplementary immunization of non-immunized pupils are now conducted at a rate of almost 100%. Meanwhile, the progress of the introduction of teaching materials and techniques in relation to human resources development was modest. Under the Project, a teachers' manual for the checking of immunization records and supplemental immunization was prepared. Even though the underlying idea of this manual was understood throughout the province, the actual use of the manual was limited to the pilot counties due to difficulty of paying for its printing cost. There was an active attempt under the Project to introduce the training cycle management (TCM) method which emphasizes the ideas of a management cycle[7] and participatory approach and trainers were trained in the pilot counties from the viewpoint of disseminating this TCM method.

[7] A management cycle means a series of stages or flow to ensure the efficient management of a project or work. Well-known cycles are ① Plan → Do → See and ② Plan → Do → Check → Action.

However, there has been no universal acceptance of the method because ① the method targeting a small number of people is not appropriate for China where the subject number of people for human resources development is huge and ② the training of trainers is inefficient as it requires much time and expense. In regard to the development and introduction of an integrated maternal and child health handbook, 12,150 handbooks have been distributed in Nanfeng County in the post-project period. There is a fundamental problem that the integration of immunization records and maternal and child health records is currently difficult as they are operated by separate administrative organizations along separate command lines partly due to the absence of a central government policy concerning the introduction of the integrated maternal and child health handbook. As of March, 2015, there is no plan for the additional printing of this handbook because of ① the outdated contents of the handbook as they do not reflect institutional changes in the health sector, ② lack of proper awareness among medical institutions of the importance of the handbook, resulting in the sporadic distribution of the handbook and ③ difficulty of efficiently using the handbook as it lacks sufficient space to fill in the necessary volume of information.

The contribution of the work regarding the checking of immunization records and supplemental immunization to the achievement of the project purpose is considered to be substantial (especially regarding measles) in Jiangxi and Gansu Provinces. However, since the full-scale provincial-wide dissemination of concrete project outcomes only took place after the completion of the Project, the planned emergence of the project effects on a province-wide basis to meet the project purpose primarily occurred in the post-project period. The current situation is that the components which are considered to be greatly effective in China appear to be selected and applied at the provincial level instead of the originally planned implementation of the model as a single package. In the case of the remaining provinces (Sichuan, Ningxia and Xinjiang), the details of the achievement situation of the project purpose (meaning the details of the contribution of the Project) at the provincial level are unclear due to the lack of a field survey.

In short, as far as the project purpose is concerned, the target immunization rate was achieved in most of the target provinces along with an improved level of surveillance and service quality by the time of project completion even though some of the more specific targets were not completely achieved in some provinces. At the time of the ex-post evaluation, some indicators, including the supplemental immunization rate for measles, are not achieved in the Ningxia and Xinjiang Autonomous Regions. No exact information is available on the situation of Japanese encephalitis laboratories in Sichuan Province. It is apparent that the activities in the first half of the project period had a certain degree of contribution to the achievement of the project purpose. In contrast, the degree of the contribution of the checking of immunization records and supplemental immunization conducted in the second half is assessed as substantial in Jiangxi and Gansu Provinces but is unclear in the case of the remaining target provinces (Sichuan, Ningxia and Xinjiang). Based on this, the project achieved at a limited level its project purpose.

3.2.2 Impacts

3.2.2.1 Achievement of the Overall Goal

As far as the state of achievement of the indicators for the overall goal is concerned, those indicators for which a target achievement time was not set are analyzed by disease in reference to their situation at the time of the ex-post evaluation. These indicators for the overall goal of the Project and the state of their achievement are outlined in Table 10. The state of achievement by indicator in each province is assessed in Table 11.

Table 10 Achievement of the Overall Goal

Objective	Indicator	Performance
Overall Goal: The health of children is improved in the five target provinces and autonomous regions through the control of diseases associated with the Project.	(Polio) 1. Maintenance of the polio-free status	The polio-free status is still maintained at the time of the ex-post evaluation.
	(Measles) 2. Lowering of the target indicator (measles incidence) value adopted by the Measles Elimination Program of China (1 in one million or less by 2012)	• The performance in the target year of 2012 showed achievement of the target in Jiangxi, Gansu and Ningxia but not in Sichuan and Xinjiang. • Since 2013, the target has not been achieved in every province (Table 12).
	(Hepatitis B) 3. The hepatitis B surface antigen prevalence rate for children under five years old is less than 1% by 2010.	• The hepatitis B surface antigen prevalence rate among children under five years old in 2010 was less than 1% although this figure was for entire China. No data for 2011 and thereafter was obtained. • The interviews with CDC officials in Jiangxi and Gansu found that the 2010 level has been maintained up to the present day, achieving the target (Table 13).
	(Japanese encephalitis) 4. Incidents of Japanese encephalitis are accurately diagnosed and suitable control measures are implemented.	• The interviews with CDC officials in Jiangxi Province found that the diagnosis of Japanese encephalitis and the implementation of control measures are sufficiently conducted. The situation in Sichuan Province is unclear.

Table 11 State of Achievement of the Overall Goal by Indicator in Each Province

Disease/ Indicator	Jiangxi	Sichuan	Gansu	Ningxia	Xinjiang	Combined
Polio: Maintenance of the polio-free status	○	○	○	○	○	○
Measles: Lowering of the target indicator (measles incidence) value adopted by the Measles Elimination Program of China (1 in million or less by 2012)	○ (×)	× (×)	○ (×)	○ (×)	× (×)	× (×)
Hepatitis B: The hepatitis B surface antigen prevalence rate for children under 5 years old is less than 1% by 2010	? (○)	? (?)	? (○)	? (?)	? (?)	? (?)
Japanese encephalitis: Incidents of Japanese encephalitis are accurately diagnosed and suitable control measures are implemented	○	?	-	-	-	△

Note: ○ = Achieved; △ = mostly achieved; ×=unachieved. The timing of the assessment is at the time of the ex-post evaluation for polio and Japanese encephalitis. For measles and hepatitis B, the state of achievement in the target year is evaluated. The assessment result in parentheses relates to the state of achievement at the time of the ex-post evaluation.

Source: Prepared by the evaluator using materials supplied by provincial CDCs and the field survey findings.

(1) Polio

According to those working for institutions specializing in infectious diseases in China and Japan, the polio-free status of China is maintained nationwide at the time of the ex-post evaluation.[8] An outbreak of polio is contained through a high immunization rate. As described earlier, an incident of imported polio in Xinjiang in 2011 was quickly contained due to the early detection of infected patients and the swift introduction of control measures. Here, two factors played a significant role in preventing the spread of polio: ① a fully functional regional laboratory to play its role and ② functioning of a system involving satisfactory surveillance and laboratory response. This successful containment of imported polio in Xinjiang was achieved due to the aggressive input of infectious disease control personnel from all over China into the region. It is also true to say, however, that the satisfactory level of infectious disease control in Xinjiang was also a vital component for the successful outcome.

Based on the above, it is fair to say that the overall goal for polio was achieved.

(2) Measles

The performance in the target year (2012) showed that the target incidence of one in one million or less was achieved in Jiangxi, Gansu and Ningxia but not in Sichuan and Xinjiang. While the minimum target level of incidence was somehow achieved in Sichuan, the incidence in Xinjiang of 27 in million was much higher than in other provinces, indicating insufficient improvement in this autonomous region.

Table 12 Measles Incidence in the Target Provinces and Autonomous Regions

(Unit: 1 in one million)

	Jiangxi	Sichuan	Gansu	Ningxia	Xinjiang
2006	36.8	99.5	55.7	6.9	14.9
2011	0.7	15.1	31.3	11.1	86.8
2012	0.9	3.1	0.7	0.9	27.0
2013	3.0	3.2	9.2	10.9	41.2
2014	1.4	-	10.4	10.1	55.6
Principal Age Group (Ratio)（2014）	< 1 year old（37.1%）	0 to 4 years old（58.0%）	0 to 1year old（35.1%）	≤20 years old（54.5%）	0 to 2years old（77.0%）

Source: Provincial CDCs.

Since 2013, the target incidence of 1 in million or less has not been achieved in any of the target provinces. The incidence exceeding 1 in 100,000 in Gansu, Ningxia and Xinjiang in 2014 was 10 times the target incidence. Xinjiang in particular recorded a very high incidence level of 55.6 in million in 2014. When looking at the most recent five year period, a trend of an improved incidence of measles can be observed in four target provinces as a result of the increased immunization rate, etc. except in Xinjiang but the target level has not been reached in general. The principal age group is young people, especially infants, in all provinces. Interviews with CDC officials in Jiangxi and Gansu found that the main reasons for the failure to achieve the target incidence are ① incidents of measles involving infants prior to immunization and ② persistent level of incidence among non-immunized adults. The suggested reasons for the much higher level of incidence in Xinjiang compared to the other provinces are ① insufficient supplemental immunization of non-immunized children because of the huge geographical area of this region together with a high level of fluid population and ② a high proportion of non-immunized adults. However, the details of these are unclear because of the absence of a field survey for this ex-post evaluation.

[8] The incident of imported polio in 2011 had a foreign source and was controlled within six months, making it legitimate to judge that the polio-free status of China was maintained despite this incident.

Based on the above, the short conclusion is that the overall goal for measles was achieved in some provinces in the target year but is not achieved in any province at the time of the ex-post evaluation.

(3) Hepatitis B

No new data on the hepatitis B antigen prevalence rate was obtained in the ex-post evaluation. The actual 2010 figure was obtained at the time of the terminal evaluation and this figure indicates that the target level (less than 1%) was achieved. However, this figure was for entire China and no concrete figures for the individual target provinces of the Project are available.

Table 13 Hepatitis B Surface Antigen Prevalence Rate among Children Under 5 Years Old (Entire China: 2010)

	Number of Children Tested	Number of Those Positive	Ratio of Positive Samples (%)	Hepatitis B Surface Antigen Prevalence Rate (%)
Boys	8,740	106	1.21	1.10
Girls	7,636	71	0.93	0.79
Total	16,376	177	1.08	0.96

Source: Terminal Evaluation Report

While a concrete antigen prevalence rate was not obtained for Jiangxi or Gansu during the field survey, the interviewed provincial CDC officials confirmed that the target was met in 2010 in their provinces and that the same level has been maintained from 2011 to the time of the ex-post evaluation. According to these officials, the improved immunization rate of women delivering babies at home as a result of the strengthened field surveillance and supplemental immunization system have made a considerable contribution to the successful control of hepatitis B.

Based on the above, while the overall goal for hepatitis B has been achieved in Jiangxi and Gansu Provinces at the time of the ex-post evaluation according to the CDCs, the real picture is unclear, partly because of the absence of new data on the antigen prevalence rate for these provinces as well as the other three provinces.

(4) Japanese Encephalitis

The interviewed Jiangxi Provincial CDC officials told the evaluator that the improved skills and knowledge concerning laboratory diagnosis had led to the sufficient levels of Japanese encephalitis diagnosis and implementation of control measures. As the incidence of Japanese encephalitis has been low in Jiangxi Province, these officials perceive that diagnosis and subsequent treatment are conducted in a satisfactory manner in this province. The situation in Sichuan Province, another target province, is unclear.

As far as the achievement of the overall goal for Japanese encephalitis is concerned, it is achieved in Jiangxi Province at the time of the ex-post evaluation but the situation in Sichuan Province is unclear.

The overall short conclusion is that the polio-free status has been maintained in all of the target provinces. In contrast, despite the trend of a declining incidence due to an improved immunization rate among children in most provinces, the target level of measles incidence has not been achieved in all of the target provinces. Moreover, the fact that the principal age group affected by measles is young children, especially infants, suggests that the health of children has not necessarily improved as planned. In the case of hepatitis B and Japanese encephalitis, the achievement of the respective targets was confirmed in the two provinces visited but the

situation in other provinces is unclear. In the light of the above, the project has achieved at a limited level its overall goal.

3.2.2.2 Other Impacts

Advancement of Countermeasures against Infectious Diseases Other Than Those Targeted by the Project

The Project targeted four different infectious diseases and the checking of immunization records and supplemental immunization in the second half of the project period principally targeted measles. The active implementation of the Project consolidated the necessary conditions for the effective control of infectious diseases, including improved linkage and communication between the people as well as organizations concerned, increased awareness of parents of infectious diseases and strengthening of the surveillance. As a result, the immunization rate was increased along with the early detection of patients and the quick implementation of control measures for not only the four targeted diseases but also for a wide range of infectious diseases.

Utilization of the TCM Method for Activities of the Health Office and CDC of Gansu Province

As described earlier, the TCM method stressing the management cycle and a participatory approach has not been utilized much to spread the concept and practice of the checking of immunization records and supplemental immunization throughout the target provinces primarily because of the high implementation cost, including the cost of trainer training (see 3.2.1.3 Contribution of the Project Towards the Achievement of the Project Purpose e). Nevertheless, the idea and effectiveness of the TCM method are highly evaluated based on the results in the pilot counties. At the provincial Health Office and CDC in Gansu, this method is actively utilized for training and management activities involving a small number of provincial officials and is becoming the standard practice.

Since this project has to some extent achieved the project purpose and overall goal, effectiveness and impact of the project are fair. For the project purpose, the target immunization rate was achieved in most provinces by the time of project completion while the improvement of the level of surveillance and quality of the immunization service was underway. In some provinces, however, part of the project purpose was not achieved for some diseases. It is apparent that the activities in the first half of the project period made a certain contribution to realizing the project purpose but the degree of contribution of the checking of immunization records and supplemental immunization conducted in the second half of the project period is unclear in Sichuan, Ningxia and Xinjiang. In regard to the overall goal, while the polio-free status has been maintained in all of the target provinces, the target incidence for measles has not been achieved or maintained in all of the target provinces. In the case of hepatitis B and Japanese encephalitis, while the achievement of the respective targets is confirmed in the provinces visited by the evaluator, the situation in other provinces is unclear.

3.3 Efficiency (Rating: ②)

3.3.1 Inputs

The inputs for the Project are classified in the following table.

Inputs	Plan	Actual (at the Time of Terminal Evaluation)
(1) Experts	Long-term: 4 persons (16 person-year) Short-term: 50 persons (50 person-month)	Long-term: 6 persons (11.2 person-year) Short-term: 43 persons
(2) Trainees received	25 persons	45 persons
(3) Equipment	Cold chain and laboratory equipment, etc.	Laboratory equipment, OA equipment, vehicles, training/information system

		equipment and cold chain Total: 133 million JPY
(4) Others	Local activities: preparation of reference materials and textbooks Local training: seminars, etc.	Cost of local activities: 135 million JPY Cost of carrying equipment: 5.8 million JPY
Japanese side Total Project Cost	580 million JPY	594 million JPY
Chinese side Operational Expenses	Administrative and executing staff for the Project, work-related facilities and project operation cost	2,610 million JPY

Note: The actual figures are those at the time of the terminal evaluation except for the total contribution by the Japanese side (at the time of project completion).
Source: Terminal Evaluation Report (JICA for the total contribution by the Japanese side (at the time of project completion))

3.3.1.1 Elements of Inputs

(1) Japanese Inputs

[Dispatch of Experts]

In regard to the dispatch of Japanese experts, the actual total person-year figure for long-term experts was 4.8 person-year lower than planned (some 11.2 person-year compared to the planned 16 person-year) and the actual total person-month figure for short-term experts was 7 person-month lower than planned (43 persons compared to the planned 50 persons). The reason for the lower figure for long-term experts is that the third generation team leader in the second half of the project period was reclassified as a short-term expert. The main reason for the lower figure for short-term experts is adverse external impacts caused by the Great Sichuan Earthquake, etc.

[Training of Counterparts]

A total of 45 Chinese persons related to the project implementing agencies in China underwent training in Japan, far exceeding the planned 25 persons. This increase was based on the recognition that in view of the wide-ranging target diseases and provinces, it would be necessary for as many Chinese personnel as possible to undergo training in Japan to improve the laboratory diagnosis capability in regard to the target diseases and also to facilitate a proper understanding of the requirements associated with immunization management and epidemiological administration. As such, the increase is believed to be within reasonable scope in view of the nature of the Project.

[Equipment]

As far as the provision of equipment is concerned, Japan provided ① laboratory equipment, ② vehicles, ③ training and information system equipment and ④ cold chain to the CCDC and provincial CDCs as shown in Table 14.

Table 14 Breakdown of Provided Equipment by Recipient

	CCDC	Jiangxi	Sichuan	Gansu	Ningxia	Xinjiang
Laboratory Equipment		○	○	○	○	○
Vehicles	○	○	○	○	○	○
Training and Information System Equipment	○	○	○	○	○	○
Cold Chain			○	○		

Note: Those marked ○ are included in the scope of equipment to be provided under the Project.
Source: Prepared by the evaluator based on the Terminal Evaluation Report.

[Other]
The Japanese side disbursed 135 million JPY to cover the cost of local activities and 5.8 million JPY to cover the cost of carrying equipment.

(2) Chinese Inputs
[Assignment of Counterparts of the Implementing Agency, etc.]
The Chinese side assigned 144 persons as counterparts for the Project. These were mainly senior officials of the Immunization Management Office, Department of Disease Control, Ministry of Health and Immunization Planning Center as well as laboratories of the CCDC at the national level and the disease control office of the provincial bureau of health and immunization planning as well as the laboratories of provincial CDCs at the local level. For the implementation of the checking of immunization records and supplemental immunization in the second half of the project period, the heads of two pilot counties in each target province were assigned as counterparts.

[Provision of Land and Facility]
A CCDC office in Beijing was provided to act as the project office.

[Financial Contribution by Chinese Side]
The Chinese side disbursed some 180 million CNY (approximately 2,610 million JPY) for the five provinces by the time of the terminal evaluation to meet the local administrative expenses. As Japan's technical cooperation project to assist infectious disease control had been continuing for some time, it was agreed that the share of China's financial contribution to the Project would gradually increase to reflect the economic development and increased funding capability of China. The Chinese proportion for the Project was high as it exceeded 80% of the total project cost.

3.3.1.2 Project Cost
The project cost of Japan was 594 million JPY which is higher than the originally planned contribution of 580 million JPY (102% of the original cost).

3.3.1.3 Period of Cooperation
The actual cooperation period was 60 months (five years) as planned.

Although the project period was as planned, the project cost slightly exceeded the plan. Therefore, the efficiency of the project is fair.

3.4 Sustainability (Rating: ③)
The subject matter in this section is checking of the necessary items for the promotion and maintenance of a drive designed to reduce the incidence of infectious diseases through improvement of the immunization rate which was the objective of the Project. Because details of the current situation have not been grasped in the three provinces where the field survey for ex-post evaluation could not be conducted, the evaluation scope of the sustainability is quite restricted. However, it has been decided to make an overall judgement on the sustainability based on ① the situation in Jiangxi and Gansu Provinces in which the field survey was conducted, ② results of interviews with officials of NHFPC and CCDC and former Japanese experts involved in the Project and ③ the situation in the five target provinces at the time of project completion and subsequent general trend in China.

3.4.1 Related Policy and Institutional Aspects for the Sustainability of Project Effects
China's development plan and policy at the time of this ex-post evaluation indicate an active commitment to promoting infectious disease control and immunization management as in the

case of such commitment at the time of project planning as well as project completion. This commitment was and still is apparent in the 12th Five Year Guideline for Economic and Social Development (2011 – 2015), China National Program for Child Development (2011 – 2020) and Draft Plan to Strictly Enforce the Guidelines for Chinese Women Development (2011 – 2020). At the provincial level, including the five target provinces, a plan has been formulated to copy the national plan, indicating an unchanged commitment at the provincial level to prioritizing infectious disease control.

In regard to the checking of immunization records and supplemental immunization, the implementation policy for the checking of immunization records has been formulated under the Project in all of the five target provinces based on the Regulations on the Administration of Vaccine Circulation and Immunization. In Jiangxi and Gansu Provinces, the evaluator has confirmed that the work in question has been implemented throughout these provinces as a uniform provincial system following the issue of an official notice explaining how to implement the work in a concrete manner.[9] According to some NHFPC and CCDC officials interviewed by the evaluator, provincial governments have been actively promoting the checking of immunization records and supplemental immunization while follow-up research has been conducted by the CCDC to further improve this work.

It is, therefore, concluded that the sustainability of the Project in terms of policy and institutional aspects is basically secured.

3.4.2 Organizational Aspects of the Implementing Agency for the Sustainability of Project Effects

As described earlier, the National Health and Family Planning Commission was launched in 2013. This means that organizational reform at the central government level has been completed and similar reform at the local government level is in progress at the time of the ex-post evaluation. Following the said organizational reform, while major staff reassignment appears to have taken place at the central government level, no significant staff reassignment has taken place in Jiangxi and Gansu Provinces where project-related activities are being smoothly implemented. In regard to CDCs which are the implementing agencies, no major changes have taken place relating to the system, roles and their relationship with superior or subordinate organizations and there are no visible problems.

In regard to the situation of the linkage and communication between the health sector and the education sector which have major implications for the smooth implementation of the checking of immunization records and supplemental immunization, one relevant development is the formulation of the implementation policy for the checking of immunization records which indicates the basic direction for linkage and communication between the two sectors, in all five target provinces. While the details for the three provinces not visited for the ex-post evaluation are unclear, it has been confirmed that the relevant work has been smoothly implemented in Jiangxi and Gansu Provinces based on the concrete division of work between the two sectors as indicated by the official notice. As such, no problems are observed.

Other types of work related to infectious disease control, including laboratory work and surveillance work, have been routinely conducted. In Jiangxi and Gansu Provinces visited by the evaluator, no organizational problems are observed down to the township/village level. The improvement of village clinics is gradually taking place. According to a former Japanese expert, the infectious disease control system in China has been continually improved in every target province of the Project. The swift response to the imported case of polio in the Xinjiang

[9] In the case of the work to distribute the maternal and child health handbook, however, it will be necessary in the future to deal with a situation where there is no immediate prospect of sustaining this work let alone its further development as it was suspended in 2014 due to the absence of a central government policy regarding the introduction of the maternal and child health handbook system even in Nanfeng County which had been the pilot county for this work (see 3.2.1.3 Contribution of the Project Towards the Achievement of the Project Purpose).

Autonomous Region is appraised as evidence of the infectious disease control system in the five target provinces having reached a certain standard.

It is, therefore, concluded that the sustainability of project effects in terms of the organizational aspects of the implementing agency is basically secured.

3.4.3 Technical Aspects of the Implementing Agency for the Sustainability of Project Effects

Various skills and know-how to achieve the five planned outputs were widely disseminated under the Project by means of the provision of training, etc. for officials of the former Ministry of Health and the CCDC, those of organizations related to infectious disease control at the provincial, municipal, county, township and village levels and people concerned in the education sector. The number of training sessions and participants in the post-project period have declined from the level in the project period (Attached Tables 1 and 2). According to the interviewed officials of the Jiangxi and Gansu Provincial CDCs, this decline reflects the Chinese government policy of implementing training more efficiently and reducing the number of training sessions. Meanwhile, the necessary training has been continually provided. In regard to the technical level of the laboratories dealing with specific diseases, the WHO proficiency test results indicate that they have maintained a satisfactory level in all of the five target provinces (see Output 2 in 3.2.1.1 Project Outputs). While the details of the three provinces not visited for the ex-post evaluation are unclear, the terminal evaluation report concluded that various types of work related to infectious disease control were smoothly conducted as routine. For this ex-post evaluation, the evaluator has confirmed that there are no technical problems in either Jiangxi Province or Gansu Province.

One promotional factor to secure the necessary technical standard concerning infectious disease control is to secure a certain level of human resources which possess expert knowledge of health in general and infectious disease control in particular. In the case of the Jiangxi and Gansu Provincial CDCs, new recruitment focuses on post-graduates. There has been an increase of the number of young doctors with certain expert knowledge working at village clinics, partly because of an improved pay package. Meanwhile, the Government of China has been pursuing wide-ranging human resources development policies, including a system of dispatching student interns to township/village hospitals or clinics for five years. There appears to be a virtuous cycle of enhanced professionalism among training participants equipped with better knowledge and expertise leading to faster understanding and mastering of the training contents, in turn leading to further improvement of the technical standard.

It is, therefore, concluded that the technical sustainability of the Project effects is basically secured.

3.4.4 Financial Aspects of the Implementing Agency for the Sustainability of Project Effects

In this ex-post evaluation, no concrete figures have been obtained for the budget size for infectious disease control and the financial situation of the CDC in each target province. However, the results of interviews with officials of NHFPC, CCDC and Jiangxi and Gansu Provincial CDCs indicate that there are no problems in regard to securing the necessary budget for their work because of the emphasis of the Government of China on infectious disease control. Fiscal spending in China (central government spending plus local government spending) has recorded a high annual growth rate of some 20% on average since 2000 against the background of steady economic development, and the growth rate of spending in the health and sanitation sector has been higher than those of other sectors (an actual annual increase of 27% in 2013). This situation suggests that the target provinces of the Project are unlikely to experience budgetary problems.

At the lower administrative levels of township and village which were thought to be more likely to experience budgetary problems, active assistance has been provided by the central government based on the Subject Matters for a Fairer Basic Public Health Service. The

budgetary disbursement for infectious disease control targeting the lower administrative levels has been continually increased to the point where 40 CNY is to be disbursed per villager in 2015 (compared to the actual figure of 15 CNY in 2009) in order to further improve the local budget situation to achieve an acceptable level to a certain extent. The growth of the relevant budget has increased the financial reward for village doctors engaged in the immunization service. Other favorable impacts of the increased budget are more publicity to make people aware of infectious disease control and the strengthening of training activities featuring various persons concerned.
It is, therefore, concluded that the financial sustainability of the Project effects is basically secured.

No major problems have been observed regarding the policy background and the organizational, technical, financial aspects of the implementing agency. Therefore, sustainability of the project effects is high.

4 Conclusions, Lessons Learned and Recommendations

4.1 Conclusions

The Project aimed at improving the immunization rate through improvement of the infectious disease control service, thereby contributing to the reduction of the incidence of infectious diseases and improving the health of children in five provinces/autonomous regions in the central and western parts of China.

The improvement of infectious disease control through the strict enforcement of immunization conforms to the importance and needs of the relevant policies of China as well as Japan's ODA policy, indicating the high level of relevance of the Project. There is no doubt that infectious disease control has generally improved in every target province/autonomous region as illustrated by increased immunization rate. However, there are some unachieved issues in some provinces and the incidence of measles has not yet reached the target. Moreover, details of the situation of hepatitis B and Japanese encephalitis are unavailable for some provinces. It is apparent that the activities in the first half of the project period made a certain contribution towards the realization of the project purpose. Meanwhile, checking of immunization records and supplemental immunization conducted in the second half of the project period made a major contribution in Jiangxi and Gansu Provinces but their contribution in the remaining Sichuan Province and Xinjiang and Ningxia Autonomous Regions could not be clearly determined. Accordingly, the general effectiveness/impacts of the Project are judged to be fair. The project period was within the planned period but the project cost exceeded the planned cost, making the efficiency of the Project fair. The sustainability of the project effects is high as there appear to be no problems regarding sustainability in relation to the policy, organization, and technical and financial requirements.

In light of the above, the Project is evaluated as satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency.

<u>Active promotion of the dissemination of the outputs of the checking of immunization records and supplemental immunization</u>

In Jiangxi and Gansu Provinces in which the field survey was conducted, it is clear that the effective dissemination and utilization of the outputs of the checking of immunization records and supplemental immunization have led to improvement of the immunization rate. Meanwhile, the situation in Sichuan, Ningxia and Xinjiang is unclear. Both NHFPC and CCDC are required to clarify the detailed dissemination and utilization situation of the checking of immunization records and supplemental immunization in these three provinces and should make active dissemination efforts if the situation of utilization is found to be insufficient. Particularly in Xinjiang Autonomous Region where there is a problem with supplemental immunization, it is essential for the project outputs to be effectively utilized. It is highly desirable for the outputs of

and lessons learned from the Project to be sorted and evaluated in an appropriate manner with a view to their active utilization in provinces not targeted by the Project.

4.2.2 Recommendations to JICA

Consultations with the Chinese side on the utilization of the outputs of the maternity and child health handbook-related work

The expected outputs did not materialize for the work to disseminate and utilize a maternal and child handbook. However, the Government of China is said to be considering the introduction of this handbook from the viewpoint of achieving the relevant Millennium Development Goals. The start of NHFPC has raised the possibility of eliminating the biggest obstacle to the introduction of the handbook in those different administrative organizations and separate command lines are involved not only in immunization but also in maternal and child health.

Future Japanese cooperation for China for this work is, however, worthy of consideration in view of its high appraisal in terms of ① the much improved understanding and awareness on the part of mothers of the necessary arrangements as well as responses to ensure the health of their children and ② the contribution to the raised level of health care in general for mothers and children through the provision of an integrated service. It is advisable for JICA to jointly assess the results of the work with NHFPC and to fully discuss the future development of the work, utilization of the relevant outputs of the Project and further potential for Japan-China cooperation.

4.3 Lessons Learned

Importance of implementing a project based on a clear policy of the central government

As mentioned earlier, there is no clear prospect for the future continuation of the work related to the maternal and child health handbook even in Nanfeng County which has been the pilot county for this work. The reasons for the slow dissemination of this work are ① lack of a central government policy regarding the introduction of a maternal and child health handbook system; ② insufficient linkage between the immunization work and the maternal and child health work because of reason ①; ③ lack of proper preparations to accommodate institutional changes and user needs (outdated contents of the handbook and lack of sufficient space to fill in vital information, etc.); and ④ insufficient awareness of the need for this type of handbook (due to insufficient education and publicity). These indicate a sharp contrast with the checking of immunization records and supplemental immunization for which the then Ministry of Health and Ministry of Education issued a clear policy for promotion of the work in 2005.

In the case of a project involving multiple ministries and agencies, one important precondition for the successful implementation of the project and dissemination of the project outputs is the existence of a clear central government policy, followed by the active involvement of stakeholder organizations in the project based on such a policy. It is, therefore, essential to fully examine and confirm ① the conformity of the planned project for promotion and dissemination with the relevant government policy and ② the likelihood of the active involvement of related organizations.

Effects of linkage and communication between diverse stakeholders and importance of external assistance to promote such linkage and communication

The establishment of a coordination system between the health sector and the education sector was emphasized in the Project, especially for the checking of immunization records and supplemental immunization. The reality of the Project is that it involved many organizations and people, such as health and education bureaus, primary schools, kindergartens, medical institutions and doctors in the pilot counties in addition to provincial health offices and CDCs. The implementation of the Project through activities involving wide-ranging project-related stakeholders and parties at various levels contributed to the promotion of effective cooperation between various organizations and the smooth implementation and embedding of the Project. It

appears likely that this type of approach involving the participation of wide-ranging parties can be implemented more smoothly if external assistance (by the JICA, etc.) is available instead of a recipient country going it alone.

Meanwhile, it is true that the implementation of a project with the participation of wide-ranging parties demands a high level of coordination capability on the part of the implementing agency (agencies) and people concerned in the recipient country. In the case of the present Project, there were no problems in regard to the coordination capability because of the high level of management capability of the Chinese organizations involved. In general, the selection of this approach should be based on the actual situation of the recipient country and the judgement results on the likely merits and demerits of the approach.

Attached Tables

Attached Table 1 Performance of Field Surveillance-Related Training

Year	Jiangxi		Sichuan		Gansu		Ningxia		Xinjiang	
	Number of Sessions	Number of Participants	Number of Sessions	Number of Participants	Number of Sessions	Number of Participants	Number of Sessions	Number of Participants	Number of Sessions	Number of Participants
2009	3	720	-	-	7	817	2	1218	3	404
2010	3	692	-	-	2	260	2	1253	4	402
2011	1	30	-	-	2	350	-	-	1	9
2012	1	30	-	-	5	647	-	-	2	160
2013	1	240	-	-	3	405	-	-	-	-
2014	1	30	-	-	-	-	-	-	1	60
Ratio of Participants to the Total Number of Relevant Persons (2014)	100%		－ %		100%		100%		100%	
Retention Rate among the Participants (2014)	100%		－ %		100%		90%		100%	

Notes

1) In the first half of the project period, training on field surveillance, etc. was carried out for a total of some 2,800 participants (Mid-Term Evaluation Report).
2) "-" denotes that the figure in question has not been obtained.

Source: Provincial CDCs

Attached Table 2 Performance of Training of Laboratory Technicians (Excluding Training in Japan)

Year	Jiangxi		Sichuan		Gansu		Ningxia		Xinjiang	
	Number of Sessions	Number of Participants	Number of Sessions	Number of Participants	Number of Sessions	Number of Participants	Number of Sessions	Number of Participants	Number of Sessions	Number of Participants
2009	3	4	-	-	1	2	2	1	1	14
2010	4	5	-	-	1	2	2	1	2	400
2011	4	7	-	-	1	2	2	1	-	-
2012	5	8	-	-	1	2	3	1	1	150
2013	4	7	-	-	1	2	3	1	-	-
2014	7	10	-	-	1	2	4	1	2	66
Ratio of Participants to the Total Number of Relevant Persons (2014)	100%		－ %		－ %		－ %		100%	
Retention Rate among the Participants (2014)	100%		－ %		－ %		－ %		100%	

Notes

1) Some 620 persons participated in the training sessions led by Japanese experts in the first half of the project period (Mid-Term Evaluation Report).
2) "-" denotes that the figure in question has not been obtained.

Source: Provincial CDCs