Socialist Republic of Viet Nam

FY2016 Ex-Post Evaluation of Japanese ODA Loan "Northern Vietnam National Roads Traffic Safety Improvement Project" / Technical Assistance Project related to ODA Loan "Project for Strengthening the Traffic Police Training in Various Police Colleges of Vietnam"[1]

External Evaluator: Hisae Takahashi, Ernst & Young Shin Nihon LLC.

## 0. Summary

"Northern Vietnam National Roads Traffic Safety Improvement Project" (the ODA Loan Project) was conducted to reduce the number of traffic accidents and fatalities caused by the same as well as reducing damage caused by accidents through installing road safety facilities, awareness activities for neighboring local residents and road users, enforcement activities of traffic regulations and strengthening traffic safety education in northern Vietnam, thereby contributing to the living environment of the surrounding area and the road-usage environment. "Project for Strengthening the Traffic Police Training in Various Police Colleges of Vietnam" (the Technical Assistance Project) was also launched to support the People's Police Academy (PPA), a training academy for traffic police to regulate traffic safety control. The purpose of two projects (the Projects) was deemed highly relevant to the development policy of Vietnam and sector strategy, which cited traffic accidents as social issues and addressed solutions; development needs to improve awareness activities and ethics and morals of traffic regulations for neighboring local residents and road users; and the Japanese assistance policy.

Both the project cost and project period of the ODA Loan Project were within the plan, therefore efficiency of the project is high. After the ODA Loan Project was completed, the number of traffic accidents, traffic accident fatalities and injuries decreased on target national highways. It was also confirmed that equivalent figures decreased in provinces and cities where the target roads were located, despite the increased number of cars registered at the time of ex-post evaluation. Moreover, the ODA Loan Project helped reduce damage incurred by road users and maintenance costs by improving the road condition, and the level of satisfaction for the road environment is high. Furthermore, it was also confirmed that the educational content and teaching methods improved in PPA and trained people played an active role in the police education institution after the Technical Assistance Project was completed. However, the data for the target national highways to analyze the effectiveness at the time of ex-post evaluation could not be

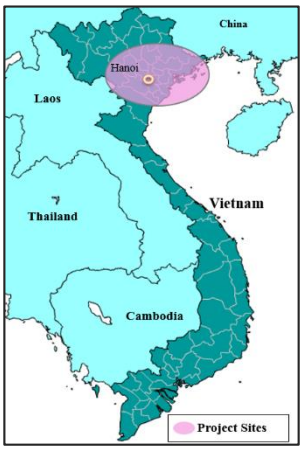
[1] "Project for Strengthening the Traffic Police Training in Various Police Colleges of Vietnam" (Technical Cooperation Project) was extended in association with the ODA Loan Project, "Northern Vietnam National Roads Traffic Safety Improvement Project", therefore, both are subject to an integrated ex-post evaluation. Refer to "1.3 Outline of the Terminal Evaluation" for details.

obtained, thus only allowed an indirect effect to be confirmed. Accordingly, the effectiveness and impact of the Projects are fair.

It was found that the equipment installed in the ODA Loan Project was maintained and kept in good condition and awareness and traffic enforcement activities also continued in each area. Despite no issues from the technical aspect of O&M, minor issues were confirmed in institutional and managing systems as well as from the financial aspect of O&M. As for the Technical Assistance Project, despite no concerns over the sustainability of educational activities in PPA, the challenge for the financial aspect on research activities was confirmed. Accordingly, the sustainability of the Projects as an integrated evaluation is fair.

In light of the above, the Projects are evaluated to be satisfactory.

## 1. Project Description




Project Location

The Installed Traffic Sign and Light

Exercises at People's Police Academy

### 1.1 Background

In Vietnam, the high number of traffic accidents had become a social problem. Among transport modes of road, inland water, maritime, railways and etc., most traffic accidents occurred on roads, occupying 96% in the number of accidents, 97% in fatalities and 98% in injuries. Number of fatalities by road traffic accidents increased about 4.6 times between 1992 and 2002, from 2,755 to 12,800 persons. Although the number had been decreased from 2002, it still exceeded 11,000 annually. In comparison with ASEAN countries, fatality rate in Vietnam ranked forth worst in 2002[2]. Although the government of Vietnam prioritized "3E" for improving traffic safety, namely facility development as "Engineering", education and awareness as "Education" and guidance and control as

[2] documents provided by JICA

"Enforcement" and initiated the development of infrastructure at accident black spots, improved the institutional framework plus laws and regulations for a security crackdown and promoted an awareness campaign, further safety measures were required due to the limited budget. Under such circumstances, the Japanese government supported the project for the development of traffic safety facilities and enforcement as well as traffic safety education and awareness -raising for neighboring local residents in four national roads, having considerable increase in traffic volume.

The training contents of educational institutions for traffic police regulating the traffic safety control have also proved inadequate in responding to the country's rapidly changing traffic situation. Accordingly, there was an urgent need to improve current-based education and training contents as well as to introduce safety measures at traffic locations. Thus, the Technical Assistance Project was implemented; aiming to improve the educational contents of PPA which nurtures police officers and retrains executives, with a plan to support both the traffic police administration and academic sides alongside the ODA Loan Project; amid expectations of achieving outputs more efficiently and effectively.

1.2 Project Outline

【ODA Loan】 "The Northern Vietnam National Roads Traffic Safety Improvement Project"

To reduce the number of fatalities from traffic accidents and mitigate the damage along four national roads (national road Nos. 3, 5 10 and 18) in northern Vietnam by developing traffic safety facilities, conducting awareness activities to local residents and road users, strengthening traffic safety enforcement and supporting the traffic safety education, thereby helping improve the living environment of local residents and the road environment for users.

| | |
|---|---|
| Loan Approved Amount/ Disbursed Amount | 6,557 million yen / 6,059 million yen |
| Exchange of Notes Date/ Loan Agreement Signing Date | March, 2007 / March, 2007 |
| Terms and Conditions | Interest Rate 1.3%<br>Repayment Period 30 years<br>(Grace Period 10 years)<br>Conditions for Procurement General Untied |
| Borrower / Executing Agencies | The Government of Socialist Republic of Viet Nam / Ministry of Public Security |
| Project Completion | June, 2014 |
| Main Contractor | - |
| Main Consultant | Consia Consultants (Denmark) / Oriental Consultants |

| | |
|---|---|
| (Over 100 million yen) | Global Co., Ltd. (Japan) (JV) |
| Feasibility Studies, etc. | "Pre-Feasibility Study" November, 2006 |
| Related Projects | ・Technical Cooperation "The Project for Traffic Safety Human Resource Development in Hanoi"(2006 – 2010)<br>・World Bank "Road Safety Project"(2005 – 2012)<br>・Asian Development Bank "ASEAN Regional Road Safety Program" (2003 – 2004) |

【Technical Cooperation】 "Project for Strengthening the Traffic Police Training in Various Police Colleges of Vietnam"

| | | |
|---|---|---|
| Overall Goal | | Traffic police training in police training institutions in Vietnam is improved. |
| Project Purpose | | Education contents of the PPA Traffic Police Faculty will be improved. PPA teacher's training ability for traffic police will be improved. |
| Output(s) | Output 1 | Improvement of training content on the "Road traffic law and public education", "Traffic guidance and control", "Traffic enforcement" and "Collecting and analyzing of traffic accident data" |
| | Output 2 | Improvement of training method encouraging students' initiatives |
| | Output 3 | Establishment of Traffic Safety Research Center and implementation of research and development activities |
| Total cost (Japanese Side) | | 399 million yen |
| Period of Cooperation | | June 2010 – December 2013<br>(Extended period July 2013 – December 2013) |
| Implementing Agency | | The Government of Socialist Republic of Vietnam /<br>The People's Police Academy (PPA) |
| Supporting Agency/ Organization in Japan | | The National Police Agency |

1.3 Policy of the Evaluation

Relevance is reviewed for both the ODA Loan Project and the Technical Assistance Project, and Efficiency is mainly reviewed for the ODA Loan Project. Effectiveness, Impact and Sustainability of the Technical Assistance Project are analyzed and evaluated based on the extent of the achievement of each output and goal confirmed at the time of ex-post evaluation as well as the contribution made in the path to the expected impact for a synergistic effect with the ODA Loan Project. This integrated evaluation for the ODA Loan Project and Technical Assistance Project considers the achievement status of the project purpose for Technical Assistance Project as a part of the project outcome for the

ODA Loan Project and confirms the contribution from the project effects of the Technical Assistance Project for making an evaluation judgment. However, the ODA Loan Project did not outline a clear relationship between both Projects on documents and neither of the executing agencies understood any relationship and association between both Projects. According to the project outline, the Technical Assistance Project supporting educational institutions for police officers is considered "traffic safety enforcement" out of the following three components of the ODA Loan Project: "development of traffic safety facilities", "traffic safety education and awareness" and "traffic safety enforcement". However, while the provision of equipment for traffic safety enforcement (ODA Loan Project) affects the effectiveness (number of accidents) and impact (surrounding and usage environment of the road) relatively within a short time span, support for educational fields at PPA (Technical Assistance Project) requires a certain period to contribute to the effectiveness and impact of the ODA Loan Project, which was considered to limit the synergistic effect and impact that could be confirmed at the time of ex-post evaluation. Therefore, the evaluation of the effectiveness of the Projects was determined based on the effectiveness/impact and a synergistic effect which were confirmed at the time of the ex-post evaluation.

## 2. Outline of the Evaluation Study

2.1 External Evaluator

Hisae Takahashi, Ernst & Young ShinNihon LLC.

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: September, 2016 – November, 2017

Duration of the Field Study: December 4, 2016 – December 22, 2016, April 12, 2017 – April 21, 2017

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

3.1 Relevance (Rating: ③[4])

3.1.1 Consistency with the Development Plan of Vietnam

At the time of planning the Projects, the Vietnamese government formulated a *Five-year Socio-Economic Development Plan (2006 – 2010)*, which cited traffic accidents as a serious issue; urging all individuals and the whole community to strive to

[3] A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

[4] ③: High, ②: Fair, ①: Low

reduce the number of such accidents and emphasizing the provision of equipment and facilities to organizations directly resolving such issues. The drafted *National Traffic Safety Strategy (2006 – 2016)* included a plan emphasizing on national road safety with the purpose of reducing the number of traffic accidents and fatalities, raising public awareness of traffic safety and strengthening national traffic safety controls in a traffic safety area.

*The Five-year Socio-Economic Development Plan (2016 – 2020)* at the time of ex-post evaluation also focused on economic growth; showing prioritized items of developing sustainable culture and society and improving people's lives alongside economic growth. To secure social safety and order, it described means to reinforce control over traffic rules by continuing measures for securing traffic safety, complying with traffic rules and decreasing traffic accidents. The same *National Traffic Safety Strategy (2006 – 2016)* was effective at the time of ex-post evaluation and national road safety measures were continuously prioritized.

The Projects aimed to decrease the number and damages of traffic accidents and injuries, and as mentioned above, they are highly relevant to the country's development plan from the time of planning through to the time of ex-post evaluation.

### 3.1.2 Consistency with the Development Needs of Vietnam

In Vietnam, at the time of appraisal of the ODA Loan Project, the number of fatalities due to traffic accidents doubled from 5,800 in 1996 to 11,500 persons in 2005, reflecting the seriousness of traffic accidents. Among transport modes, most traffic accidents occurred on roads, 49% of which on national roads in 2001. Under such circumstances, National Traffic Security Committee (NTSC) determined that those traffic accidents were mainly due to non-compliance with traffic rules by road users, the government failing to acknowledge or impose traffic safety controls, inadequate sanctions, inconsistency and delays being effective in orders, standards, rules and regulations, a shortage of technical abilities and equipment required for traffic safety control, insufficient awareness activities and information promotion about traffic act and inadequate infrastructure[5], etc.[6].

The number of traffic accident fatalities decreased from 8,788 in 2014 to 8,385 in 2015 and 7,696 persons in 2016, respectively. The number of accidents occurring on national roads decreased from 49% at the time of planning the ODA Loan Project to 35% in 2015. However, among transport modes, road traffic accidents still occupied 96 - 98%

[5] The mixture of vehicles, bicycles and pedestrians and the shortage of traffic signs were raised in particular.
[6] Source: documents provided by JICA

of all fatalities even at the time of ex-post evaluation. NTSC indicated the need to rehabilitate national roads, implement awareness activities among road users and residents, improve the ethical and moral aspect of traffic rules and implement periodical safety traffic campaigns on a yearly and monthly basis, toward continuous traffic safety to improve the situation of road traffic accident.

The Technical Assistance Project also contributes to traffic safety, like the ODA Loan Project, by supporting academic institutions assisting traffic polices to enforce traffic safety. Both Projects aimed to improve traffic safety on the targeted national roads and were therefore relevant to the development needs of the country at the time of planning as well as ex-post evaluation.

3.1.3 Consistency with Japan's ODA Policy

At the time of planning, the Ministry of Foreign Affairs drafted a *Country Assistance Program for Vietnam (April 2004);* prioritizing three areas of: 1) Growth promotion, 2) Life and social improvement, 3) Development of the system as a basis of society and economics. 1) Growth promotion showed "a focus on support for transportation and traffic safety" including automobile traffic. JICA's *Country Assistance Strategy for Vietnam in 2006* also specified "considering assistance for facility development for traffic safety, awareness activities among residents and road users alongside the target national road and strengthening traffic safety control and education". The Projects support strengthening of facility development for traffic safety, awareness activities and traffic safety education and therefore, as indicated at the time of planning, was highly relevant to Japan's ODA policy.

3.1.4 Appropriateness of the Project Plan and Approach

As for Technical Assistance Project, a certain amount of time is required to confirm the synergistic effect with the ODA Loan Project. Conversely, the ODA Loan Project implemented the development of facilities and equipment and traffic safety awareness activities, while the Technical Assistance Project supported educational institutions with traffic police officers controlling traffic safety, both of which were consistent with the policies and the development needs as well as boosted traffic safety. This was considered an appropriate program and expected to have an efficient and effective effect by supporting traffic police administration and education.

The Projects were highly relevant to the Vietnamese development plan and development needs, as well as Japan's ODA policy. The Project plans and approaches was also appropriate. Therefore, its relevance is high.

3.2 Efficiency (Rating: ③)

3.2.1 Outputs

The ODA Loan Project conducted 1) facility development, 2) procurement of equipment and training for education and awareness, 3) procurement of equipment and training for traffic safety enforcement and 4) consulting services, as required for traffic safety, at the four national roads listed below in northern Vietnam (refer to Table 1 and Figure 1 for details). The plan and actual output are shown in Table 2- 5.

Table 1 The Section of Target National Road and Location of the ODA Loan Project

| National Road | Target Section | Province/City |
|---|---|---|
| No. 3 | Hanoi – Thai Nguyen | Hanoi city, Thai Nguyen province |
| No. 5 | Hanoi – Hai Phong | Hanoi city, Hai Phong city, Hai Duong province, Hung Yen province |
| No. 10 | Ninh Binh – Quang Ninh | Hai Phong city, Nam Dinh province, Thai Binh province, Quang Ninh province, Ninh Binh province |
| No. 18 | Bac Ninh – Quang Ninh | Bac Ninh province, Hai Duong province, Quang Ninh province |

Source: document provided by JICA


Figure 1 Map of the Target National Road

Source: document provided by executing agency

(1) Main changes to traffic safety facility construction

Some items that are not easily comparable have still been included due to the different indications between the plan and actual output. Meanwhile, the planned items were largely covered and implemented, despite disparity in the total number of

constructed facilities and km length covered. Considering the safety of target sections where the road width narrowed compared to the traffic volume, two lanes were also widened to four in National Road No.3 and No.8 additionally, following a suggestion from the executing agency. Under the ODA Loan Project, the records of traffic accidents were analyzed and discussion ensued based on analytical results obtained by the consultant and the suggestions and opinions of stakeholders after the contract. Improvements were then made based on the results, which was analyzed in more detail than the original. Accordingly, changes were made to provide support responding to the real situation and were hence considered appropriate, despite some differences from the plan.

Table 2 Planned and Actual Outputs (Construction of Traffic safety facilities)

| Planned output | Number |
|---|---|
| Intersection (Number) | 20 |
| Signal (Number) | 16 |
| Railway at grade crossing (Number) | 2 |
| Safety measure for minor intersection (Number) | 36 |
| Push button signal system installation (Number) | 10 |
| Overpass bridge construction (Number) | - |
| Widening for motor cycle & bicycle lane (Number) | 2 |
| Widening section (km) | 10 |
| Center median installation (Number) | 8 |
| Safety measure such as guardrail, etc., on curve section (Number) | 24 |
| Installation section (km) | 11.3 |
| Bus bay installation (Number) | 16 |
| Widening for paved shoulder (width: 2.5m),(Length: km) | 63 |

| Actual output | Number |
|---|---|
| Intersection (Number) | 64 |
| Signal (Number) | Included above |
| Railway at grade crossing (Number) | |
| Lightening system installation (km) | 7 |
| Installation of warning signs (Number) | 42 |
| Push button signal system installation (Number) | 3 |
| Overpass bridge construction (Number) | 13 |
| Widening for motor cycle & bicycle lane (Number) | 6 |
| Center median installation (km) | 32 |
| Center median upgrade (Number) | 18 |
| Safety measure such as guardrail, etc., on curve section Installation section (km) | 2 |
| Bus bay installation (Number) | 98 |
| Widening for paved shoulder (width: 11 m),(Length: km) | 6 |
| Widening for paved shoulder (width: 19.2m),(Length: km) | 6 |
| Overlay (km) | 359 |
| Upgrade roads (2→4 lanes)(km) | 19.5 |

Source: documents provided by JICA and executing agency

(2) Changes in procured equipment and training sessions for road safety education and awareness activities

Procuring the equipment needed for the campaign involving awareness activities and the equipment used for the same as well as the training itself were mainly supported. As for the outputs of those activities, the equipment was procured and training conducted based on suggestions and opinions made by the contracted

consultant and related institutions. Accordingly, the actual output differed from the plan. The equipment provided was selected based on the results of further examination beyond the original analysis; hence the changes can be considered appropriate.

Table 3 Planned and Actual Outputs
(Procured Equipment and Training for Traffic Safety Education and Awareness-Raising Activities)

| Item | Plan | Actual |
|---|---|---|
| Material for campaign activities at installed traffic safety facilities | Banners, Posters | Preparation and distribution of posters, banners and leaflet, campaign cars, uniform, etc. |
| Material for education and campaign activities in the section of installed traffic safety facilities | Banners, Posters | Teaching kid, PCs, printers, video recorders, projectors, cameras, tape recorders, signpost models, helmets, etc. |
| Training material for teacher, for guard man in going and leaving to/from school and education material for traffic safety at schools and communes | N/A | Education material such as DVD, etc., installing the traffic safety corner at schools, Sets of road signs, PCs, projectors, cameras, etc. |
| Leader trainings | 1,170 teacher for Lower and upper secondary education<br>1,034 parents and community residents | Holding traffic safety education trainings and workshops: 927 leaders at lower and upper secondary schools and 105,518 teachers and students and local residents participated |

Source: document provided by JICA and executing agency

(3) Changes in procured equipment to strengthen traffic safety enforcement for training sessions and traffic safety campaigns

Equipment was procured and training sessions were conducted to strengthen traffic safety enforcement differed from the original plan since those changes were decided through discussion between the traffic polices and traffic safety committees of each province based on the result of further coordination beyond the scope of the plan and were hence considered appropriate and commensurate with local circumstances.

Table 4 Planned and Actual Outputs
(Equipment procured to strengthen traffic safety enforcement, for training sessions and traffic safety campaigns)

| Item | Plan | Actual |
|---|---|---|
| Equipment for traffic safety enforcement used at installed traffic safety facilities | 18 patrol cars, 35 patrol motorcycles, 17 wrecker trucks, 11 vehicle scales, 35 speed guns, 34 alcohol sensors, 34 video recorders, 34 digital cameras, 68 warning lights, 340 guideposts, 340 sticks, 340 whistles, 68 two way radios, 28 computers | 13 patrol cars, 48 patrol motorcycles, 13 wrecker trucks, 13 speed guns, alcohol sensors (N/A for numbers), 32 digital cameras, guideposts/sticks/ whistles (N/A for numbers), 65 computers, 13 vehicle speed measuring machines, 31video recorders, 30 printers, etc. |
| Leader trainings | 900 local community leaders, 22 traffic safety guardsman in each area, Traffic polices (No detail information) | 380 traffic safety polices |
| Traffic safety campaigns | Banners, TV, Newspapers, etc. | As planned |

Source: document provided by JICA and executing agency

(4) Consulting services

Consulting services in the ODA Loan Project supported efforts by the executing agency to formulate the training plan and implement training sessions for school education, local residences and traffic polices as well as supporting detailed design, tendering assistance and implementation supervision which are usually provided.

Table 5 Planned and Actual Outputs

| Plan | Output |
|---|---|
| Project management support for formulating comprehensive action plan, coordination among related institutions, monitoring and evaluation, etc. | As planned |
| Detailed design, tendering assistance, implementation supervision | |
| Formulation of training plans for Project Management Unit, support of implementing training sessions | |

Source: document provided by JICA and executing agency

3.2.2 Project Inputs[7]

3.2.2.1 Project Cost

The actual total ODA Loan Project cost was 7,215 million yen (6,059 million yen from Japanese ODA Loan) while the planned cost was 7,773 million yen (6,557 million yen from Japanese ODA Loan), meaning the total project cost was within the planned (93% of the original plan). The major reason why the actual cost was

[7] Though the planned and actual project cost and period of the Technical Cooperation Project are shown and compared, they are not considered in principle when judging the evaluation based on the reference for external ex-post evaluation.

lower than the plan was the fluctuating exchange rate[8].

The actual Technical Assistance Project cost was 399 million yen due to the additional input of experts along with the extension of the project period while the planned cost was 350 million yen, hence the project cost was higher than planned (Refer to "3.2.2.2 Project Period" for details of how the project period was extended and the additional input of experts).

3.2.2.2 Project Periods[9]

The scheduled ODA Loan Project period was 66 months, January 2008 through June 2013 and the actual period was 56 months, November 2009 through June 2014, within the plan. Contracting with the consultant was started after one year and 10 months delay from the plan; the project completion was also moved back. This time lag was due to the delay in coordination on the part of the Vietnamese Government, which needed to approve the consultant contract documents.

Conversely, the planned Technical Assistance Project period was three years, June 2010 through June 2013 and the actual period was extended from July to December 2013, longer than the planned. This delay was due to the changes in legal status for the Traffic Safety Research Center to secure the budget and personnel when commencing the research activities of the center as originally planned. Due to this change, a six-month extension was decided when conducting the terminal evaluation to summarize requests for new research and to assess current needs on site and advise on the legal framework, budget measures, personal allocation plan and formulating a plan for future activity, to obtain approval for setting up the formal institution[10].

3.2.3 Results of Calculations for Internal Rate of Return (Reference only)

Economic Internal Rate of Return (EIRR) of the ODA Loan Project was estimated as 20% at the time of appraisal[11]. Although recalculation based on assumption at the time of appraisal has to be attempted, details of the assumption and data on each national

[8] Source: questionnaires to the Japanese experts. According to them, the exchange rate of 1 yen=180 Vietnamese Don (VND) at the time of planning became 1 yen = 265 VND during the implementation and 1 yen =200 VND in June 2014, making it difficult to predict the fluctuation. Accordingly, the project progressed by adjusting to take account of the fluctuation in yen and VND, which comprised 92% of the planned cost.

[9] The project period defined from the time of the contract with the consultant to the completion of consulting services as an agreement which defined the project start as the time of concluding a contract with a consultant, was confirmed by the documents as of the plan.

[10] Source: interviews with Japanese experts and responses to PPA questionnaire.

[11] Cost: project cost except taxes, operation and maintenance cost, Benefit: Medical cost for casualties and families and social costs, Project life: ten years

road could not be obtained from the executing agency[12], which meant the EIRR at the time of ex-post evaluation could not be recalculated.

Conversely, the project consultants showed the EIRRs of the ODA Loan Project targeted at the time of starting the project and that when the project was completed. Based on this information, although no precondition could be confirmed, it was confirmed that EIRR as of the project completion met the assumptions, except for No.5. The fact that EIRR of only No.5 was lower than other national roads was attributable to high project costs for No.5, because the number of constructed pedestrian bridges with a high unit cost was greater than other national roads[13].

Table 6 Comparison of EIRR at the Time of Project Completion

| Assumption as of the commencement | Project completion (2013) | | | |
|---|---|---|---|---|
| Assumption | No. 3 | No. 5 | No. 10 | No. 18 |
| 12% - 24% | 21.2% | 11.4% | 23.9% | 14.7% |
| 【Benefit】 Accident cost reduction, Travel time cost reduction and fuel saving cost<br>【Cost】 Project cost, Operation and maintenance cost | | | | |

Source: document provided by executing agency

Based on the above, both the project cost and project period were within the plan. Therefore, efficiency of the ODA Loan Project is high.

3.3 Effectiveness[14] (Rating:② (ODA Loan Project:②/ Technical Assistance Project:③)

In this ODA Loan Project, support for road traffic safety was implemented by developing traffic safety facilities and conducting awareness activities and campaigns. Meanwhile, the Technical Assistance Project mainly targeted the educational field which focused on trainings of trainees to be traffic police, meaning a certain period will be required until the outputs reach the stage of contributing toward roadside safety through trained human resources. Accordingly, it was difficult to treat the effectiveness and impact of both projects in parallel during the ex-post evaluation. With this in mind, this evaluation shows the effectiveness and impact of the ODA loan and Technical Assistance Project respectively, then assigning a sub-rating to each. Evaluating the effectiveness of the Projects was finalized based on effectiveness and impact which could be confirmed and the synergetic effect at the time of ex-post evaluation, as explained in "1.3 Policy of

[12] When assuming benefits, details of the number of traffic accidents and casualties on the target national roads are required. As explained later in "3.3 Effectiveness", since such data on individual national roads cannot be obtained in Vietnam, it was difficult to calculate with the same assumption as the appraisal time.
[13] Overpass bridges were installed five in No. 5, none in No.3 and No.10 and three in No.18.
[14] Sub-rating for Effectiveness is to be evaluated with Impact.

Evaluation".

3.3.1 Quantitative Effects (Operation and Effect Indicators)

(1) Number of traffic accidents, injuries and fatalities caused by traffic accidents in the target sections

Table 7 shows changes in the number of traffic accidents, injuries and fatal traffic accidents. At the time of appraisal and project completion, the project employed consultants, who collected data on each of the target national roads. As shown in Figure 1, while each target road in this project was allocated across multiple provinces, data, including the number of traffic accidents, was collected by each province at the time of ex-post evaluation, meaning the executing agency and related institutions lacked data on the individual national roads. Accordingly, the effect of this project at the time of ex-post evaluation could not be accurately confirmed. For this reason, the information was quoted from the project evaluation report[15] prepared at the time of project completion as an available source in this evaluation. The actual data can be said to show the direct effects of the project as it reflects the time right after the equipment installation. Since the baseline data of 2006 shown as of the appraisal and that in the project evaluation reports prepared as of the project completion do not match, the targets cannot be simply compared. The number of traffic accidents per km per year, however, improved by a considerable 80% or for more than 80% of the target data except for No.18[16], meaning the target was largely achieved at the time of project completion. In addition, Figure 2 shows the actual data from 2006 to 2013 of Table 7, showing that the number of traffic accidents, injuries and fatal traffic accidents have declined since the equipment was installed in 2011.

This ODA Loan Project prioritized traffic accident black spots for installing the facilities. For example, improving sharp curve sections has helped prevent accidents by widening the field of vision of drivers. Installing an overpass for pedestrians, bicycles and motorcycle lanes and the center median in busy national roads all directly helped secure safety for road users. As such, the effects of this project at the time of completion were confirmed.

[15] Source: documents provided by JICA and executing agency

[16] Regarding an explanation for the difference between No.18 and other national roads, no clear reasons were obtained when confirming with the executing agency.

Table 7 Number of Traffic Accidents, Injuries and Fatalities in the Target National Roads

| Indicators | National road No. | Baseline (Appraisal) | Target (3 years after project completion) | Before installing equipment | | | | | During or after installing equipment | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2006 | 2016 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 Completion year |
| Traffic accidents (Number/ year) | 3 | 119 | 84 | 75 | 61 | 143 | 198 | 236 | 98 | 52 | 22 |
| | 5 | 449 | 319 | 158 | 153 | 134 | 152 | 179 | 75 | 66 | 74 |
| | 10 | 170 | 121 | 47 | 48 | 39 | 48 | 92 | 35 | 36 | 41 |
| | 18 | 42 | 30 | 210 | 219 | 157 | 130 | 134 | 87 | 55 | 105 |
| Traffic accidents (Number/ km/year) | 3 | 1.8 | 1.3 | 1.2 | 0.9 | 2.2 | 3.1 | 3.7 | 1.5 | 0.8 | 0.3 |
| | 5 | 4.2 | 3.0 | 1.7 | 1.7 | 1.4 | 1.6 | 1.9 | 0.8 | 0.7 | 0.8 |
| | 10 | 1.2 | 0.9 | 0.6 | 0.6 | 0.5 | 0.6 | 1.1 | 0.4 | 0.4 | 0.5 |
| | 18 | 0.9 | 0.6 | 1.3 | 1.4 | 1.0 | 0.8 | 0.9 | 0.6 | 0.4 | 0.7 |
| Injures by traffic accidents (person /year) | 3 | 156 | 111 | 89 | 58 | 178 | 223 | 288 | 99 | 48 | 6 |
| | 5 | 65 | 46 | 147 | 110 | 103 | 99 | 72 | 35 | 27 | 37 |
| | 10 | 199 | 141 | 37 | 25 | 21 | 19 | 69 | 21 | 14 | 31 |
| | 18 | 47 | 33 | 163 | 155 | 142 | 113 | 87 | 82 | 68 | 85 |
| Injures by traffic accidents (person /km/ year) | 3 | 2.5 | 1.8 | 1.4 | 0.9 | 2.8 | 3.5 | 4.5 | 1.5 | 0.7 | 0.1 |
| | 5 | 0.6 | 0.4 | 1.6 | 1.2 | 1.1 | 1.1 | 0.8 | 0.4 | 0.3 | 0.4 |
| | 10 | 1.4 | 1.0 | 0.4 | 0.3 | 0.3 | 0.2 | 0.8 | 0.3 | 0.2 | 0.4 |
| | 18 | 0.3 | 0.2 | 1.0 | 1.0 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.5 |
| Fatalities by traffic accident(person / year) | 3 | 58 | 41 | 61 | 49 | 71 | 97 | 72 | 44 | 31 | 25 |
| | 5 | 11 | 8 | 115 | 138 | 92 | 121 | 76 | 74 | 66 | 63 |
| | 10 | 36 | 26 | 43 | 46 | 42 | 49 | 52 | 30 | 31 | 31 |
| | 18 | 30 | 21 | 163 | 155 | 142 | 113 | 87 | 82 | 68 | 85 |
| Fatalities by traffic accident(person /km/year) | 3 | 0.9 | 0.6 | 0.9 | 0.8 | 1.1 | 1.5 | 1.1 | 0.7 | 0.5 | 0.4 |
| | 5 | 0.1 | 0.1 | 1.2 | 1.5 | 1.0 | 1.3 | 0.8 | 0.8 | 0.7 | 0.7 |
| | 10 | 0.3 | 0.2 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.4 | 0.4 | 0.4 |
| | 18 | 0.7 | 0.5 | 1.0 | 1.0 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.5 |

Source: documents provided by JICA and executing agency

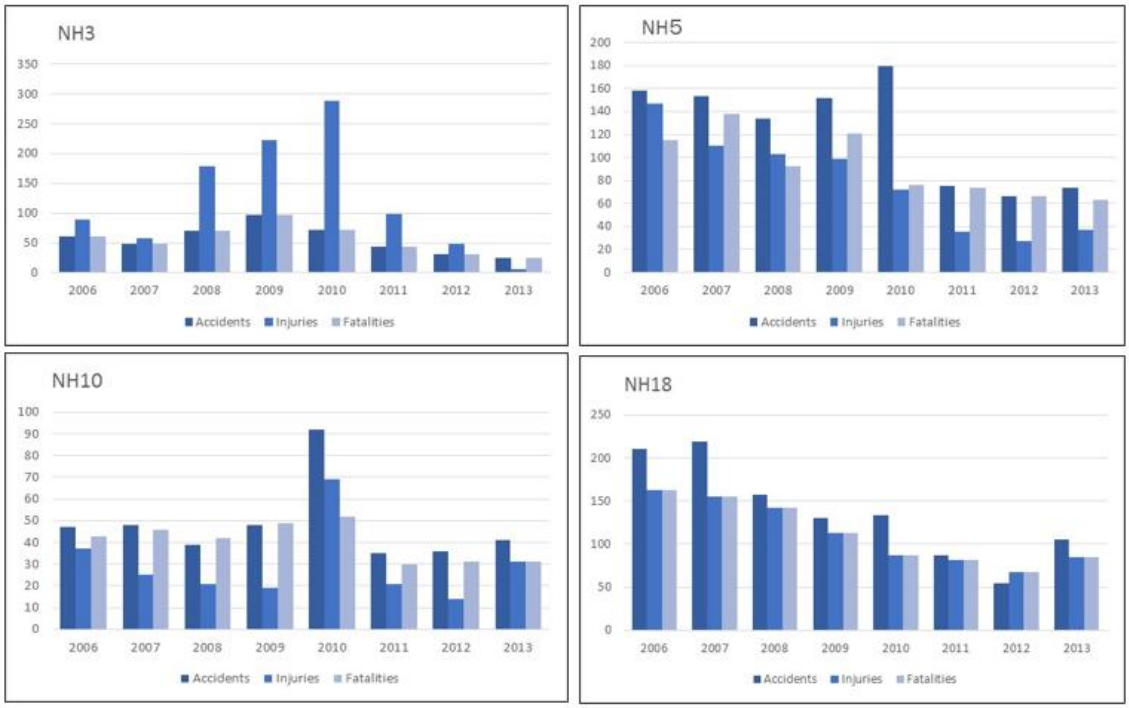



Figure 2 Changes in the Number of Traffic Accidents, Injuries and Fatalities in the Target Sections

(Before Project, After Installing the Facilities and Equipment, till Project Completion)

Source: prepared based on the documents provided by executing agency

In addition, the numbers of traffic accidents, fatalities and injuries by traffic accidents in cities and provinces where the target national roads were located at the time of ex-post evaluation divided by that before implementing the project (data after/before the project) are shown in Figure 3. If the number is below one, it indicates that the number of accidents, etc. as of the ex-post evaluation was lower than the pre-project figure. Since the numbers of accidents and so on are proportional to the increase in traffic volume and registered car numbers, the number of cars registered with each city and province as of the ex-post evaluation compared to figures before the project was also shown as a reference (Table 8). According to JICA documents at the time of appraisal, traffic accidents doubled from 1996 to 2005. Conversely, Figure 3 shows that the number of fatalities except for Thai Binh province as of ex-post evaluation decreased compared to before the project, despite a large increase in the number of registered cars in all cities and provinces as shown in Table 8. This data includes accident information which happened in other roads located in each city and province and thus can be taken as only reference information, however, it is thought to include information showing improvement in traffic safety conditions in areas where target national roads of the ODA Loan Project are located.

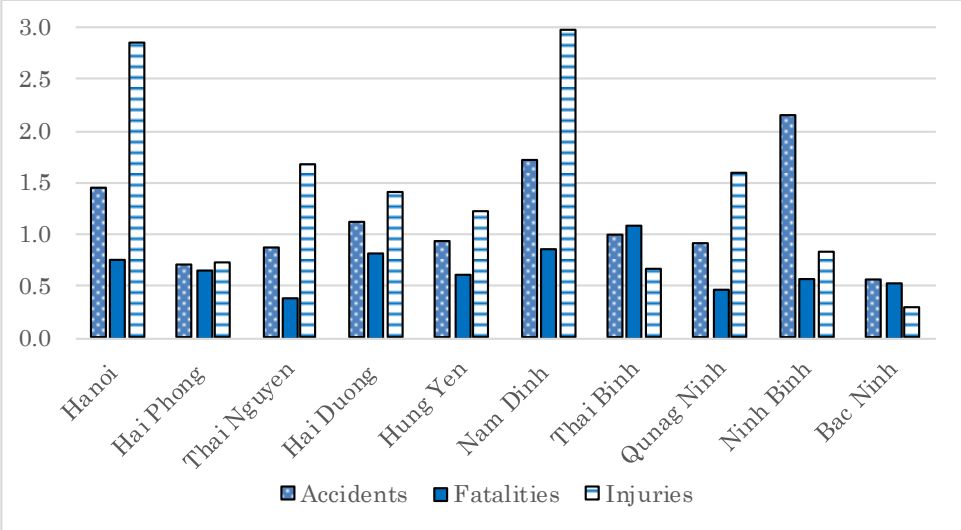



Figure 3 Numbers of Accidents, Fatalities and Injuries Before and After Project (After project in 2016/ Before project in 2010)

Source: documents provided NTSC and each city/province Traffic Safety Committee

Table 8 Changes of the Number of Registered Car

| NH | City/Province | Changes of car registers (Times) |
|---|---|---|
| ③ | Hanoi city | 9.7 |
| ⑤⑩ | Hai Phong city | 11.0 |
| ③ | Thai Nguyen | 10.1 |
| ⑤⑱ | Hai Duong | 13.5 |
| ⑤ | Hung Yen province | 9.3 |
| ⑩ | Nam Dinh province | 11.6 |
| ⑩ | Thai Binh province | 11.3 |
| ⑩⑱ | Qunag Ninh province | 10.0 |
| ⑩ | Ninh Binh province | 9.5 |
| ⑱ | Bac Ninh province | 11.8 |

Source: documents provided each city/province Traffic Safety Committee

Note: Data shows a comparison on the number of registered cars between 2008 and 2016

### 3.3.2 Qualitative Effects (Other Effects)

The qualitative effects were confirmed as follows through the beneficiary survey[17] though such effects were unspecified as of appraisal in this project.

(1) Improvement in traffic safety conditions at target sections

More than 90% of respondents answered that traffic safety conditions at the target national roads had improved. Both road users (mainly drivers) and neighboring local residents responded that the traffic safety facilities installed had helped improve traffic safety condition in the target section (See Figure 4), confirming the project contribution. For more details, opinions are raised as follows; installing the intersection and signals made road crossings safer, installing bus bays stopped people from running out into the road while awaiting buses which increased safety, installing a center median helped drivers drive more safely and not into opposite lanes.

Table 9 Improvement of Traffic Safety

| | Largely improved | Improved | No change | Worsen | Much worsen |
|---|---|---|---|---|---|
| Road users | 46% | 54% | 0% | 0% | 0% |
| Neighboring local residents | 40% | 52% | 8% | 0% | 0% |

Source: beneficiary survey

[17] In the four National Roads targeted under the project (No. 3, 5, 10 and 18), interview surveys with a total of 200 ①100 road users (drivers) and ②100 neighboring local residents (numbers of responses, ①100 male, 39 male and 61 female) were selected on a non-random basis and conducted by local survey assistants (25 persons each from Thai Nguyen in No.3, Hai Duong in No.5, Thai Binh in No.10 and Bac Ninh in No.18 respectively). Road users were selected on a non-random basis at rest areas alongside target national roads and facilities installed, industrial parks and bus bays. Since most of the drivers were male, it was difficult to get the result with the consideration of the gender balance. Neighboring local residents were selected on a non-random basis alongside the target road of each province. In the list of local resident in the cities and provinces where the target roads are located, both areas alongside and not alongside the target roads are mixed, meaning that the beneficiary cannot be correctly selected from the list. Moreover, despite the need for approval from the People's Committee to obtain a list of residents, it was difficult to obtain approval from all People's Committees due to time constraints. Therefore, the respondents were selected on a non-random basis alongside the road where the facilities were installed. Basically, respondents were selected based on responses to preliminary questions (whether they were aware of the situation before and after the project, whether they were involved in the awareness activities, whether they had heard about activities, etc.) for every few other houses. Since the households were alongside the target roads, the answers reflected the opinions of residents throughout the area but mainly limited to those alongside residents.

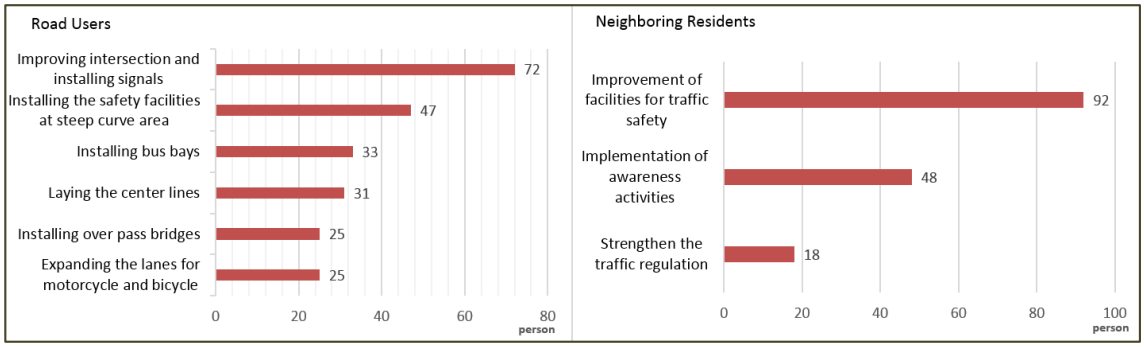



Figure 4 Reasons for Improving Traffic Safety (Multiple Answers)

Source: beneficiary survey

Road Condition Before Installing Overpasses by the Project (left) and After the Project (right)

Note: The photo (left) was provided by executing agency

(2) Reduction in damage caused by traffic accidents

All the road user respondents and 88% of local residents responding answered that the damage caused by road accidents had decreased. The reasons cited by respondents included the fact that they used to see accidents frequently while driving and respondents also experienced being involved in accidents before implementing the project, but that the frequency of such cases declined significantly after the project. While not all the answers are based on their own experiences of reducing damage, they all relied on cases which were actually confirmed by respondents, meaning a decline in damage from accidents at the target national roads was seen as a whole.

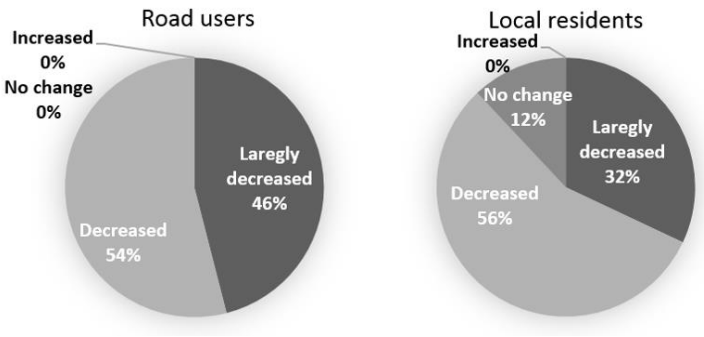



Figure 5 Reductions in Damage Caused by Traffic Accidents

Source: beneficiary survey

(3) Improved understanding of traffic regulations and rules

80% of the respondents among neighboring residents answered that understanding of traffic regulations and rules had increased after the ODA Loan Project, meaning the awareness education held at primary and lower secondary schools nearby as well as traffic safety campaigns among residents living near to the target roads conducted by the project was thought to have helped promote their understanding. According to interviews with beneficiaries, it was explained that awareness activities and so on had even been conducted before the project, while those conducted during this project introduced material including photos and videos which had not been used previously, facilitating understanding of activities compared to those originally. Conversely, the lack of awareness activities and so on involving road users (drivers) meant they did not fully understand the installed signposts and rules and efforts to promote understanding were said to have limited success. Though a single project cannot cover all road users, measures to promote road users' understanding will be required in future.

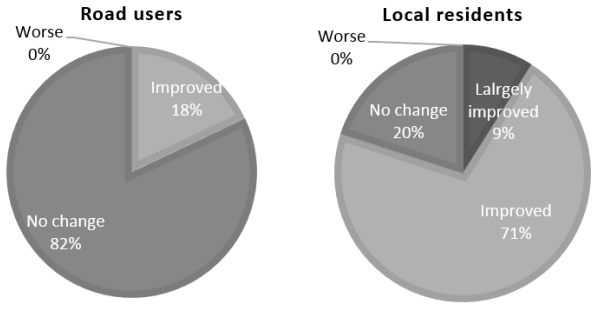



Figure 6 Improvements in Traffic Regulations and Rules

Source: beneficiary survey

(4) Changes in traffic manners

The project conducted awareness activities and a campaign for neighboring local residents. Consequently, approximately 87% of the responding neighboring local residents answered that their traffic manners had improved. Some respondents were unable to distinguish between the activities/campaign conducted under this project and the other implementing entities, which means although not all the improvements can necessarily be attributed to this project, it is still considered to have helped improve traffic manners among neighboring local residents through awareness activities and a campaign of the ODA Loan Project. Meanwhile, 42% and more than half of the road user said no changes in their traffic manner.

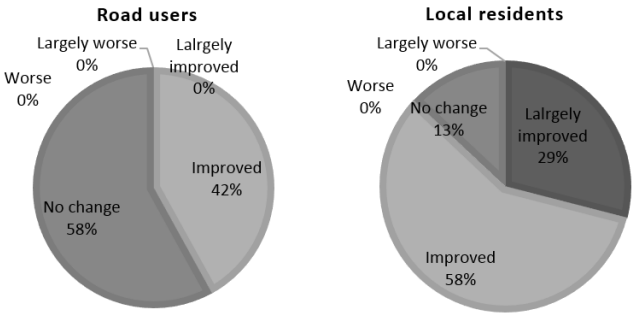



Figure 7 Personal Perceptions of Changes in Traffic Manners

Source: beneficiary survey

## 3.4 Impacts

### 3.4.1 Intended Impacts

Intended impacts generated by implementing the ODA Loan Project included "Improvement in the living environment for neighboring local residents to target national roads" and "Improvement in the road-usage environment for road users". The impact generated and confirmed via the beneficiary survey was as follows:

(1) Improvement in the living environment in surrounding target national roads and the usage environment for road users

In the beneficiary survey, 62% of responding local residents answered that the living environment around the road had improved. Major reasons cited included opinions such as "dust around the road has decreased", "the living environment is getting safer", "doing business alongside the road is getting easier" thanks to widened paved shoulders, overlays and road improvements. Moreover, all felt that the road-usage environment had improved after the project. When confirming with road users, it was explained that installing center median, safety measures on steep curved sections and installing lights and so on had significantly improved the usage environment in terms of safety during

driving. In addition, 51% of respondents replied that the maintenance cost for vehicles has declined alongside the improvement in the road-usage environment. They explained the reasons as follows: the cost of fixing worn tires and damaged parts had reduced due to less reckless driving and so on, on steep curved section amid the improvement in the road-usage environment.

Table 10 Improvement of Living Environment in the Surrounding Target National Roads and Usage Environment for Road Users

| | Largely improved | Improved | No change | Worsen | Much worsen |
|---|---|---|---|---|---|
| Improvement of living environment in the surrounding target national roads | 0% | 62% | 38% | 0% | 0% |
| Improvement of usage environment for road users | 44% | 56% | 0% | 0% | 0% |

Source: beneficiary survey

Table 11 Reduction of Maintenance Cost for Vehicles of Road Users

| | Largely reduced | Reduced | No change | Increased | Largely increased |
|---|---|---|---|---|---|
| Reduction of maintenance cost for vehicles | 2% | 49% | 49% | 0% | 0% |

Source: beneficiary survey

(2) Satisfaction level of local residents living near the target national highway and road users

All respondents answered they were satisfied with the road traffic safety environment after the project. Facilities boosted road traffic safety in a manner directly connected to driving and pedestrian activities. For instance, installed intersections, bus bays, overpasses and so on reduce the risks of pedestrians getting caught up in car accidents, while establishing motorcycle and bicycle lanes helped cars, bicycles and motorcycles drive more safely. Installing center lines and medians prevented cars from driving in the opposite lanes and made safe driving possible in areas where two lanes expanded to four. In addition, dust no longer flies off the paved road, meaning the positive impact from an environment perspective was also confirmed.

Table 12 Level of Satisfaction with the Road Traffic Safety Environment

| | Highly satisfied | Satisfied | Neither | Not satisfied | Not satisfied at all |
|---|---|---|---|---|---|
| Neighboring local residents | 0% | 62% | 38% | 0% | 0% |
| Road users | 40% | 60% | 0% | 0% | 0% |

Source: Beneficiary survey

3.4.2 Other Positive and Negative Impacts

(1) Impacts on the Natural Environment

According to a document related to planning, an environment impact assessment report was prepared for the ODA Loan Project in accordance with *the law on Environment Protection of Vietnam, 2005*. During the construction, air and noise were monitored including the expanded sites added to the original output by the construction company. In addition, following an interview with the executing agency and after confirming the monitoring report and site survey, no complaints regarding noise and so on were confirmed in the course of implementing the project.

(2) Land Acquisition and Resettlement

The ODA Loan Project was conducted in an area of existing public road, meaning no land acquisition and resettlement were planned. However, 23 households were resettled in No.3 of Thai Nguyen province and 2.1 hectares of land was acquired by improving the road from two lanes to four. According to interview surveys with the executing agency, the consultants and neighboring local residents, both resettlement and land acquisition were conducted in line with the rule of local government and no special issues were confirmed.

By installing traffic safety facilities and having traffic safety awareness activities for primary and secondary schools and neighboring local residents and so on, it was confirmed that the numbers of fatalities, traffic accidents and injuries in traffic accidents at the time of the project completion had declined compared to before the project. Moreover, the living environment of neighboring and local residents, traffic safety conditions of road users and the level of satisfaction with traffic safety had improved while damage caused by traffic accidents had decreased. Conversely, information at the time of ex-post evaluation could not be obtained from executing agency since the data related to traffic accidents on target national roads was not collected after the project completion. Accordingly, sufficient proof of facts to judge the effectiveness and impact after project completion till the ex-post evaluation could not be attained. Therefore effectiveness and impact of the ODA Loan Project are fair.

3.4.3 Intended Effectiveness and Impact of the Technical Assistance Project

3.4.3.1 Effectiveness of the Technical Assistance Project

The project purposes of the Technical Assistance Project included “Improvement of the educational contents” and “Improving teacher’s training ability” at the Traffic Police Faculty of the PPA. Targeted indicators and achievement status were as follows:

Indicator 1: Syllabus/Teaching Materials are authorized by PPA.

Indicator 2: Lecture/exercise using project output is commenced.

Indicator 3: Research result including policy proposals is reported to Ministry of Public Securities and others.

Through implementation of the Technical Assistance Project, textbooks for four subjects[18], supplemental materials[19] and syllabus were approved at PPA (Indicator 1). While the previous materials did not reflect the updated traffic conditions, new materials were prepared to reflect the current Vietnamese situations and featured improved and more realistic contents. Furthermore, the lesson style was also significantly changed. Although lectures were mainly used before the project, sufficient time for practical lessons was secured in the new curriculum.

Before the project, teachers used to mainly conduct lecture-type lessons on a unilateral basis based on their own experiences. Teachers prepared lesson scenarios for classes and conducted the lectures and practical lessons using textbooks and supplemental materials prepared during the Technical Assistance Project (Indicator 2). Moreover, lessons were conducted whereby teachers would often pose questions to students and proceed with classes while checking the level of understanding of their students. Pilot lessons with contents that were student oriented to promote their proactive participation were repeatedly conducted. In the process, the teaching ability of teachers was evaluated and feedback, which helped them improve their teaching ability. Even during interview surveys, students of the Traffic Police Faculty and some graduates explained that their understanding of lessons had improved following participation, hence the improvement in the teacher's teaching ability was also confirmed.

At PPA, a research theme related to traffic police activities was designed and a system to conduct research activities was internally organized. It was approved as a research center attached to the PPA by the Ministry of Public Securities and the number of personnel was also increased at the time of Technical Assistance Project's completion. It is expected to strengthen the function to analyze data on national traffic accidents and make effective policy recommendations in future. The center has already issued a White Paper on Traffic Safety while implementing the project, which has been recognized as useful principle information for discussion on policy suggestions (Indicator 3).

[18] "Road Traffic Law and Public Education" "Traffic Guidance and Control" "Traffic Enforcement" "Collecting and Analyzing of Traffic Accident Data"

[19] Exercise books, video clips, PowerPoint materials and so on

In light of the above, the three indicators were achieved and it can be said that the project purposes, namely "Improving educational content" and "Improving teacher's training ability" at the Traffic Police Faculty of the PPA, had been achieved.

3.4.3.2 Intended Impact of the Technical Assistance Project

"Traffic police training in police training institutions is improved" was an expected impact of the Technical Assistance Project. The achievement status of two targeted indicators was as follows:

Indicator 1: University/Colleges begin to utilize teaching materials made by PPA.

Indicator 2: Lecturers of university/Colleges trained in PPA begins to train students.

Teaching materials prepared and approved by the PPA were introduced not only to the PPA but also to the People's Police University in Ho Chi Minh and People's Police Colleges in Hanoi and Quang Nam provinces after the Technical Assistance Project's completion. Subsequently, they were also introduced to training institutions in Ho Chi Minh and Can Tho, whereupon all parties utilized the new materials at the time of ex-post evaluation (Indicator 1). It was confirmed that the Technical Assistance Project had helped enrich the educational content of education institutions for training traffic police in the field, including the People's Police University and training institutions as well as PPA, which mainly trains official police using such educational materials. In addition, according to the PPA, education and training sessions for teachers in training institutions were regularly conducted at the PPA or PPA teachers were dispatched to institutions even after project completion. Accordingly, graduates from each institution are expected to be assigned as active traffic police and will help strengthen traffic safety enforcement in the field in future.

Thanks to the implementation of the Technical Assistance Project, the educational content and teaching method at the PPA have improved, and trained persons with newly developed education materials at the PPA are actively deployed at the People's Police University and training institution; confirming that the project purpose and overall goals have been achieved. Accordingly, the effectiveness and impact of the Technical Assistance Project are high.

In light of the above, the decrease in fatalities from traffic accidents and number of traffic accidents, the reduced damage and the improved living environment for neighboring local residents and the road use environment by the time of ODA Loan Project completion, were confirmed when assessing the effectiveness and impact. Conversely, sufficient

information to prove the effect of the ODA Loan Project as of the ex-post evaluation could not be obtained. Meanwhile, a Technical Assistance Project was conducted to improve the educational content and the teacher's teaching ability at PPA and effectiveness and impact for the project alone can be considered high. However, it is too early to confirm the conceivable impact[20] of the Technical Assistance Project on synergistic effects with the ODA Loan Project. As mentioned above, with the implementation of the two projects, the ODA Loan Project and the Technical Assistance Project, since a certain level of effects were confirmed, the effectiveness and impact of the integrated evaluation of the Projects are fair.

3.5 Sustainability (Rating:② (ODA Loan Project:②/ Technical Assistance Project:②))

3.5.1 Sustainability of the ODA Loan Project

3.5.1.1 Institutional Aspects of Operation and Maintenance

The Operation and Maintenance (O&M) system of the facilities and equipment installed in this ODA Loan Project remained unchanged since the time of appraisal and is shown in the table below. However, Thai Binh, Bac Ninh, Hai Duong, Quan Ninh and Nam Dinh provinces, which mainly oversee signal maintenance, explained that the handover certificate of facilities had not yet been officially issued to the provinces. Therefore, since the facilities were not recognized as the property of provinces, this led to issues such as inability to secure maintenance budget, despite no facilities being unused due to malfunction at the time of ex-post evaluation. The Vietnam Road Administration (VRA), overseeing maintenance for other facilities, including expanded roads, manages O&M while outsourcing daily maintenance to private companies. The roles of the responsible institution in conducting awareness activities, enforcing traffic safety guidance, traffic safety education and so on are also clear as shown in Table 13. Though responses on the situation for assigning appropriate staff for kinds of activities as well as O&M had not been collected from all provinces, the responding provinces (six out of 10) reported no issues.

[20] For example, the impact was assumed to be activities that contribute to road traffic safety such as future graduates being engaged in traffic enforcement activities in each area.

Table 13 O&M System of Facilities and Equipment

| Facilities, Equipment, Activities | Responsible institutions for O&M |
|---|---|
| Signals | Province/City ; traffic polices |
| Other facilities, road | VRA |
| Equipment/Material for school education | Province/City; Department of education and training |
| Equipment/Material for education and awareness in communities | Province/City; Traffic Safety Committees |
| Equipment for enforcement | Province/City ; traffic polices |
| Traffic safety education activities at schools | Province/City; Department of education and training |
| Traffic safety education activities in communities | Province/City; Traffic Safety Committees |
| Enforcement activities | Province/City ; traffic polices |

Source: document provided by JICA and interview to executing agency

3.5.1.2 Technical Aspects of Operation and Maintenance

VRA, overseeing the O&M of facilities except signals and roads, is a subsidiary of the Ministry of Transport and has sufficient experience of O&M of road infrastructure, meaning there are no special issues in terms of technical capacity. The Province and City Traffic Police, which have jurisdiction over signals, also have no concerns[21] on a technical level for appropriate O&M. When actually negotiating target national roads, it was confirmed that facilities such as signals, lights, overpasses, bus bays and so on were properly utilized. As for materials provided to conduct awareness activities, since posters and banners are short-lived and considered consumables, only audio education material and campaign cars need O&M. After confirming the current conditions via executing agencies and a site survey, it was confirmed that they were properly operated and maintained and fully utilized. Accordingly, there are no concerns in terms of the technical aspect of O&M.

3.5.1.3 Financial Aspects of Operation and Maintenance

The budget will be allocated by the organizations overseeing O&M as listed above.

The Department of Road Management in VRA, overseeing O&M of major facilities such as expanded road and center median, etc., are allocated a budget through the Ministry of Transport. According to VRA staff, the minimum necessary O&M can be conducted with this budget, although the allocation of an appropriate O&M budget was not guaranteed (See Table 14 for the amount). Considering that each road was largely in good condition when negotiating the target national highway during the site surveys,

[21] interview surveys to executing agencies and Provincial traffic polices

no serious concerns were raised regarding the financial aspect of O&M.

Table 14 O&M cost of VRA by each National Highway

(Unit: million VND)

| National Road No. | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|
| 3 | 16,224 | 6,146 | 8,104 | 7,399 |
| 5 | 8,205 | 7,473 | 8,533 | 0 |
| 10 | 7,930 | 15,925 | 16,585 | 12,510 |
| 18 | 3,916 | 1,650 | 616 | 401 |

Source: document provided by VRA

Note: Regarding why no O&M budget was allocated to No.5 in 2016, no clear reasons were obtained when confirming with the VRA, but they explained that the amount allocated was decided based on the proposed amount.

Since responsibility for City and Provincial traffic polices overseeing O&M of signal facilities remains unclear, as written in "3.5.1.1 Institutional Aspects of Operation and Maintenance", most traffic police face an inability to secure the O&M budget. Accordingly, it can be said that concerns are raised over the financial aspects for sustainability. Despite the lack of any reported problems caused by damage or a lack of maintenance through responses to the questionnaires from executing agencies and each province and site surveys, the first priority is to clarify the responsible O&M organization by issuing a handover certificate to secure the future O&M budget.

3.5.1.4 Current Status of Operation and Maintenance

【Facilities, Equipment, Material】

When the maintenance conditions of facilities and equipment supported in this ODA Loan Project were confirmed during the site survey, the installed signals, motorcycle and bicycle lanes, center median and safety measures for steep curve sections and bus bays, etc. were deemed to be fully utilized, despite the low usage rate of some pedestrian overpasses (pedestrians were crossing the road without using them). Among the material procured in the ODA Loan Project, posters and so on were discarded after being used a couple of times for awareness and education activities and severely dilapidated, but equipment for traffic safety campaigns, including campaign cars, patrol cars, patrol motorcycles and pick-up cars, was fully utilized even at the time of ex-post evaluation, hence there is no concern over the current O&M status.

【Education・Awareness・Traffic enforcement activities】

According to interview surveys with a provincial Traffic Safety Committee and the primary schools visited, it was confirmed that awareness activities, strengthened traffic enforcement and a traffic safety education campaign had been incorporated in school

education and that traffic safety campaigns and contests had also been regularly conducted. In Hai Duong province for example, traffic safety seminars were conducted for 348 primary and secondary schools in 2013; traffic safety training for 600 commune leaders and safety guardsman in 2014; and sessions for 265 communes and wards as well as for staff engaged in traffic safety were sponsored by the provincial Traffic Safety Committee in 2015. The contribution of those activities is significant since education material and campaign cars supported by the Technical Assistance Project have been effectively utilized for continuing the activities.

Conversely, it was often reported in the interview survey during the site visits that the road users (drivers) did not properly understand signposts, hence there is high need to conduct and continue awareness activities as required on signposts for road users and traffic safety for pedestrians.

In light of the above, the facilities and equipment installed in the ODA Loan Project were deemed fully utilized and awareness activities and campaign for traffic rule enforcement have continued in each area. It was confirmed that there was no particular concern over the technical capacity required for O&M. However, in some provinces (six out of nine confirmed in the current status), since the handover certificates were not officially informed, no budget for O&M was secured due to the lack of clarity over responsibilities for O&M facilities. As such, some problems were observed in terms of sustainability from institutional and financial perspectives. Accordingly, sustainability of the ODA Loan Project effects is fair.

### 3.5.2 Sustainability of the Technical Assistance Project

#### 3.5.2.1 Institutional Aspects of Operation and Maintenance

Usually, there is no turnover in the PPA, thus the numbers of teachers and staff assigned are appropriate and a system to provide the required education has been developed. The number of staff at the Traffic Safety Research Center was also increased from seven to 13 following approval by the Ministry of Public Security in 2013. At the time of ex-post evaluation, a total of 25 personnel had been secured. Accordingly, the required number of teachers and staff were assigned to provide education as needed and no sustainability issues were confirmed in terms of the organizational institutional aspect.

#### 3.5.2.2 Technical Aspect of Operation and Maintenance

Since there are almost no cases of turnover except retirement in PPA, the teaching capacity of teachers has been sustained. Even after the Technical Assistance Project

was completed, when the traffic safety rules were changed and new rules introduced, the educational content was updated by modifying the corresponding parts, eliminating concerns over the technical capacity. Conversely, efforts by the Traffic Safety Research Center to improve the capacity of junior staff through timely training have proved a challenge, given the numerous junior level staff as talent recruited for research activities in the traffic safety field, including Ph.D., master's degree and bachelor's degree holders.

3.5.2.3 Financial Aspect of Operation and Maintenance

Since all PPA training programs are conducted based on the approval of the Traffic Police, the necessary budget for O&M is allocated by the Ministry of Public Securities. According to PPA staff, the budget to conduct the approved training programs was allocated every year without issues, though no information on the budget amount was provided by the Ministry of Public Securities. The fact the planned training programs were actually conducted each year, it was confirmed that there were no issues as regards providing the appropriate education from a financial perspective. Meanwhile, the staff of the Traffic Safety Research Center raised the issue of limitations on research activities due to budget shortages. The budget allocated for research activities was 200 million VND in 2014, 300 million VND in 2015 and 700 million VND in 2016, but they only covered issuing a booklet for traffic safety and approximately 1,500 million VND would be needed to conduct analysis and research for contributing to traffic safety which is expected as the Center's role.

3.5.2.4 Current Status of Operation and Maintenance

In PPA, sustainability to provide improved education can be expected as educational contents being enhanced based on actual traffic rules, even after the Technical Assistance Project was completed. In addition, curriculums and materials for the Technical Assistance Project which have supported preparation for major subjects have been provided to other educational institutions for traffic police by the time of ex-post evaluation and actually utilized. Accordingly, they are not only fully utilized but also disseminated to other institutions, meaning that sustainability is secured and also expected in future. However, the project was completed in December 2013 and the number of graduates is still limited to a certain number even at the time of ex-post evaluation. Accordingly, it can be said that a few years of time will be needed to widely confirm the actual result where the graduates actually play their roles in the traffic field.

Education contents, curriculums and materials, etc. improved by the Technical Assistance Project were revised as needed by PPA and continuously utilized and then also spread to other educational institutions for traffic police. No technical concerns were confirmed and its sustainability is fully expected. However, the Traffic Safety Research Center lacked financial resources and concerns over financial aspects were confirmed given limitations on some research activities. Thus sustainability of the Technical Assistance Project effects is fair.

In light of the above, the integrated evaluation for sustainability of the project effects generated from ODA Loan Project and Technical Assistance Project is fair.

## 4. Conclusion, Lessons Learned and Recommendations

### 4.1 Conclusion

The ODA Loan Project was conducted to reduce the number of traffic accidents and fatalities caused by the same as well as reducing damage caused by accidents by installing road safety facilities, awareness activities for neighboring local residents and road users in northern Vietnam, enforcement activities of traffic regulations and strengthening traffic safety education, thereby contributing to the living environment of the surrounding area and the road -usage environment. The Technical Assistance Project was also launched to support the PPA, a training academy for traffic police to regulate traffic safety. The purpose of the Projects was deemed highly relevant to the development policy of Vietnam and sector strategy, which cited traffic accidents as social issues and addressed national solutions and development needs to improve awareness activities and ethics and morals of traffic regulations for neighboring local residents and road users and the Japanese assistance policy. Both the project cost and project period of the ODA Loan Project were within the plan, therefore efficiency of the project is high. After the ODA Loan Project was completed, the number of traffic accidents, traffic accident fatalities and injuries decreased on target national highways. It was also confirmed that equivalent figures decreased in provinces and cities where the target roads were located, despite the increased number of cars registered at the time of ex-post evaluation. Moreover, the ODA Loan Project helped reduce damage incurred by road users and maintenance costs by improving the road condition, and the level of satisfaction at the road environment is high. Furthermore, it was also confirmed that the educational content and teaching methods had improved and trained people played an active role in the police education institution after the Technical Assistance Project was completed. However, the data for the target national highways to analyze the effectiveness at the time of ex-post evaluation only allowed an indirect effect to be confirmed. Accordingly, the effectiveness

and impact of the project are fair. The equipment installed in the project is maintained and kept in good condition and awareness and traffic enforcement activities also continued in each area. Despite no issues from the technical aspect of O&M, minor issues were confirmed in institutional and managing systems as well as from the financial aspect of O&M. As for the Technical Assistance Project, despite no concerns over the sustainability of education activities, the challenge for the financial aspect on research activities was confirmed. Accordingly, the project sustainability in an integrated manner is fair.

In light of the above, this project is evaluated to be satisfactory.

## 4.2 Recommendations

### 4.2.1 Recommendations to the Executing Agency

- At Provincial Traffic Safety Committees, the budget for damages could not be proposed beforehand due to the lack of official handover processes for facilities and equipment installed under the ODA Loan Project, despite acknowledging the need for maintenance. The executing agency is required to conduct the official handover in writing and set up a system for Provincial government to secure the O&M budget required promptly.

- There are many cases seen where road users not understanding road signs correctly and pedestrians crossing national roads without using overpasses even after the ODA Loan Project was completed. Traffic Safety Committees and Traffic Polices of provinces/cities must impose measures on road users and neighboring local residents to enhance their understanding of road traffic rules and so on. On such occasions, as well as continuing their awareness activities, for example, it is also considered effective to devise means of displaying posters to explain such road signs in prominent places for drivers such as rest areas and distribute leaflets to explain when issuing and renewing driver's licenses.

### 4.2.2 Recommendations to JICA

None

## 4.3 Lessons Learned

- <u>Clarification of the O&M structure and prior consensus on procedure among concerned institutions</u>

  Provincial Traffic Safety Committees explained that facilities and equipment have not been officially handed over to them after the ODA Loan Project completed. Under such circumstances, Provinces understand the needs of O&M, however, the budget

when damages and so on occur have not been secured at the time of ex-post evaluation. The reason is explained as the inability to share the necessary procedures among related institutions while the plan was to move responsibility of O&M for the procured facilities and equipment from the executing agency to traffic safety committees and traffic polices of the target 10 provinces/cities. In case the executing agency differs from the maintenance institutions or there are many institutions involved, the executing agency and maintenance institutions clarify their responsibilities and roles after project completion and must obtain consensus for the required procedure at the planning stage.

・Setting indicators in the perspective of the executing agency's monitoring

When evaluating this Project, it was confirmed that the specified operating and effect indicators could not be obtained from the existing data collected by the executing agency. Preparing the monitoring system as of planning is critical for the executing agency to implement the project for managing progress and capturing its effect. Accordingly, it is preferable for the executing agency to confirm whether a monitoring system utilizing the data they usually collect has been prepared at the time of the project planning, or set the indicators that are possible to be monitored and prepare a system for it.

Comparison of the Original and Actual Scope of the ODA Loan Project

| Item | Plan | | Actual | |
|---|---|---|---|---|
| 1. Project Outputs | Items | No. | Items | No. |
| Construction of traffic safety Facilities | Intersection<br>Signal<br>Railway at grade crossing<br>Safety measure for minor intersection<br>Push button signal system<br>Overpass bridge construction<br>Widening for motorcycle & bicycle<br>Center median installation<br>Safety measures on curve section<br>Installation section (km)<br>Bus bay installation<br>Widening for paved shoulder (km) | 20<br>16<br>2<br>36<br>10<br>-<br>2<br>8<br>24<br>11.3<br>16<br>63 | Intersection (number)<br>Signals<br>Railway at grade crossing<br>Lightening system (km)<br>Warning signs<br>Push button signal system<br>Overpass bridge construction<br>Widening for motorcycle & bicycle<br>Center median installation<br>Safety measures on curve<br>Bus bay installation<br>Widening for paved shoulder (km)<br>Overlay | 64<br>Included above<br>7<br>42<br>3<br>13<br>6<br>32<br>2<br>98<br>6<br>359 |
| Procured Equipment and training for traffic safety and awareness raising | a) Materials for campaign activities at installed traffic safety facilities: Banners, Posters, Media use<br>b) Material for education and campaign activities in the section of installed traffic safety facilities: Banners, Posters, Media use<br>c) Training material for teacher, for guard man in going and leaving to/from school and education material at schools and communes<br>d) Leader training: 1,170 teacher for primary and lower secondary education, 1,034 parents and community residents (local residents) | | a) Banners, Posters, preparation and distribution of leaflet, campaign cars, uniform, etc.<br>b) Teaching kit, PCs, printers, video recorders, projectors, cameras, tape recorders, signpost models, helmets, etc.<br>c) DVD, installing the traffic safety corner at schools, Sets of road signs, PC, projectors, camera, etc.<br>d) Trainings and workshops for traffic safety education: 927 leaders at primary and lower secondary schools and 105,518 teachers and students and local residents participated | |
| Procured Equipment and training for strengthen traffic safety enforcement and traffic safety campaigns | a) Equipment for traffic safety enforcement used at installed traffic safety facilities :18 patrol cars, 35 patrol motorcycles, 17 wrecker trucks, 11 vehicle scales, 35 speed guns, 34 alcohol sensors, 34 video recorders, 34 digital cameras, 68 warning lights, 340 guideposts, 340 sticks, 340 whistles, 68 two way radios, 28 computers<br>b)Leader trainings: 900 local guardsman in each area, Traffic polices (No detail information)<br>c) Traffic safety campaigns :Banners, TV, Newspapers, etc. | | a)13 patrol cars, 48 patrol motorcycles, 13 wrecker trucks, 13 speed guns, alcohol sensors (N/A for numbers), 32 digital cameras, guideposts/sticks/ whistles (N/A for numbers), 65 computers, 13 vehicle speed measuring machines, 31video recorders, 30 printers, etc.<br>b)Leader trainings: 380 traffic safety polices<br>c) As planned | |
| Consulting service | a) Project management support<br>b)Detailed design, tendering assistance, implementation supervision<br>c) Formulation of training plans for Project Management Unit, support of implementing training sessions | | As planned | |

| | | |
|---|---|---|
| 2. Project Period | January 2008 – June 2013<br>(66 months) | November 2009 – June 2014<br>(56 months) |
| 3. Project Cost | | |
| Amount Paid in Foreign Currency | 2,860 million yen | N/A |
| Amount Paid in Local Currency | 4,913 million yen<br>(674,863 million VND) | N/A<br>N/A |
| Total | 7,773 million yen | 7,215 million yen |
| ODA Loan Portion | 6,557 million yen | 6,059 million yen |
| Exchange Rate | 1VND = 0.00728 yen<br>(November 2006) | 1VND = 0.00442 yen<br>(Average between November 2009 and June 2014) |
| 4. Final Disbursement | July 2014 | |