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Pakistan

Rural Roads Construction Project

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Field Survey: March 2008

1. Project Profile and Japan's ODA Loan

Map of project areas

Project area of Kabula, Punjab Province

1.1 Background:

Road construction is one of key points for economic development. In addition to highways used for the transportation between urban areas or between uraban and rural area, the construction of rural roads for economic and social development in rural area is very important.

In Pakistan, the roads as of 1990 (total length was about 120,000 km) mainly consisted of national roads, provincial roads, and local roads. For national highways, the National Highway Authority is in charge of building and maintenance, while the Communication and Works Departments (CWD, see Note 14) of each provincial government is in charge of those for provincial and local roads. When this project started, the levels of road density (0.14 km/km) and paved road ratio (49.8%) were low. Also, paved road ratio of local roads was the lowest (16.8%) among various roads, although local roads occupied more than half of entire length of all roads. As the background of this project, the intention was to enhance the living standard in rural areas by promoting road pavement.

1.2 Objective

The project's objective is to improve rural traffic conditions by upgrading a total of about 936 km of existing unpaved local roads to all-weather motorable roads, as well as constructing new roads, in 33 districts of 4 provinces in Pakistan, thereby contributing to rural social and economic development.

1.3 Borrower Executing Agency

・Borrower: The President of the Islamic Republic of Pakistan

・Executing Agency: Ministry of Local Government and Rural Development (MLGRD)

1.4 Outline of Loan Agreement:

Loan Amount/Loan Disbursed Amount	11.468 billion yen/10.545 billion yen
Exchange of Notes/Loan Agreement	August, 1993/August, 1993
Conditions for Loan Agreement	Interest rate 2.6%, Repayment period 30 years (with 10 years grace period) General untied loan
Final Disbursement Date	November, 2004
Main Contractors	Companies in Pakistan
Consultant Services	M/s Construction Project Consultants (Japan), M/s Pacific Consultants Int., M/s Indus Associated Consultants, M/s NESPAK, M/s Techno Consult, M/s Loya Associates in association with A.A. Associates
Feasibility Study(F/S), etc.	1989 MLGRD made PC-I 1990 Pakistani government requested this project as a part of the 27th ODA loan 1991 Special Assistance for Project Formation (SAPROF) 1992 Pakistani government requested this project again as a part of the 28th ODA loan 1994 Special Assistance for Project Implementation (SAPI)

2. Evaluation Results (Rating: B)

2.1 Relevance (Rating: a)

Implementation of this project conformed with the national plan, etc. at the time of appraisal and at the time of post evaluation, and the relevance of project implementation is high.

2.1.1 Relevance at the time of appraisal

From before staring this project, the development of local roads in Pakistan was considered important in the policy of Pakistani government and in the support from foreign countries. Development of local roads has been explicitly included in Pakistan's five-year plans from the fourth such plan (July, 1965 - June, 1970). In the 6th 5-year plan (July, 1983 - June, 1988), the enhancement of local roads was recognized as an important target, and about 15,000 km of local road, which exceeded the target value, was constructed. Furthermore, in the 7th 5-year plan (July, 1988 - June, 1993), the improvement in the living conditions of rural areas through their development was placed as its main target, and construction of 8,500 km of local road was also given a high priority. From the 6th 5-year plan, assistance from overseas has been used positively. The Asian Development Bank (ADB) has constructed a total of about 2,000 km of local roads, which run through all states, through the Farm-to-Market Road Project, which was implemented for two terms. United States Agency for International Development (USAID) was constructing, at the time, about 220 km of local road in Sindh Province under the Road Resource Management Project.

Development of local roads is positioned as a part of the development program for rural areas which is implemented by each provincial government. As of 1991, Pakistan had a population of 114 million, of which 70% was living in villages. The agricultural sector occupied 51.2% of the workforce and consisted 26% of the GDP, so the development of rural areas was an indispensable condition for the development of Pakistan's economy. In rural areas, local roads were insufficient to guarantee access to agricultural product markets, neighboring urban areas, schools, healthcare facilities, religious facilities, etc., and it was preventing the improvement of living conditions of the residents in rural areas. Not only was the number of local roads small, but also the paved road ratio was low[1]. Unpaved roads are damaged more easily than paved roads. Especially during the rainy season, the road conditions get worse, so it becomes difficult to use tractors and cars, which are the methods for transportation and conveyance for the residents of rural areas. Thus, this posed a serious problem to their means of transport. Furthermore, these conditions caused an increase in the transportation costs of agricultural products and hindrances to the distribution of goods and to the residents' means of transport. As a result, through the restricted income of agricultural households and lack of employment opportunities other than agriculture, this became an impediment to the development of the economy in rural areas as well as an obstacle for the improvement of social indicators such as children's school attendance rate and the infant

[1] As of 1990, in the total 66,000 km local roads, paved road ratio was only 16.8%.

mortality rate. Construction of local all-weather motorable roads was an urgent and important issue in the respect that it was a major constituent of the rural development and that it was a basic condition to achieve other targets in the rural development.

2.1.2 Relevance of the plan at the time of evaluation

Even at the present time in Pakistan, the development of local roads is considered necessary, since it is useful for the rural development, e.g. farmers' access to the markets, trade of agricultural products with high prices, development of undeveloped resources along local roads, diffusion of social services and awareness-raising in local area, and poverty reduction. The project's original relevance, therefore, has not been lost. The population that benefits from comfortable road travel is small, as shown in Table 1. The Medium-Term Development Framework (2005 - 2010), which includes programs related to the central government and the provinces, puts emphasis on the development of rural areas. PRSP[2] formulated in 2003 which was the basis of this framework, first pointed out roads as the infrastructure that would contribute to the poverty reduction and clarified the necessity of improving road traffic in rural areas.

Table 1 Needs for the roads in rural areas

	Proportion of rural population with paved access	Proportion of rural population with bus/wagon stop within village	Average distance to a bus/wagon stop for rural population without stops within village (km)
Punjab	76%	66%	3.8
Sindh	63%	83%	4.1
NWFP	68%	62%	5.7
Balochistan	27%	74%	30.9
Other regions	31%	69%	4.9
Pakistan	68%	69%	8.2

Source: *Rural Access and Mobility in Pakistan* (2005), World Bank; Original source is Pakistan Integrated Household Survey 2001-2002

2.2 Efficiency (Rating: b)

Evaluation on efficiency of this project is moderate, because the project term by far exceeded that in the plan (by about 234%) although the project cost was almost same as that in the plan.

[2] Poverty Reduction Strategy Paper. A paper on a poverty reduction policy a borrowing country is to prepare, that was decided at the annual general assembly of IMF in September 1999 as a condition for funding for the reduction of debt.

2.2.1 Output

The outputs consist of road construction for rural areas and consulting service for their construction[3] For example, Fig. 1 shows a road paved by this project in Takht Pari, Punjab Province.

The length of the roads constructed exceeded the length in the plan. The amount of the loan agreement at the time of signing in 1993 was worth 3.91 trillion rupees, but the value increased to 4.999 trillion rupees due to exchange fluctuation, and the total length of the road was increased with the permission of the Japan Bank for International Cooperation (JBIC).

With the extension of the road construction period from the 60 months in the original plan to 108 months, the employment period for the consulting service also increased.

2.2.2 Project Period

The project period greatly exceeded the plan. While the original plan was for 61 months, the actual period was 143 months. The main reasons for the extension were the following five factors:

Firstly, the start of the project, which was originally scheduled for 1995, was delayed until 1998, due to a delay in funds transfer and the expansion of the scope of construction due to the exchange rate fluctuation.

Secondly, it took time to change the road design policy. At the planning phase of this project in 1992, when this project started, the policy was to design the same type of road for the entire country. However, technical parameters for road construction, such as height and width of embankments, width of pavements, numbers of drainage ways and bridges, had to be different for each road, and the design had to be changed. In addition, in several cases, consultants had to change road design at the actual construction sites which were located in remote places.

The third factor was personnel problems. These included a lack of consultants, behavioral problems of individuals or lack of decisiveness, financial concerns and lack of skills of contractors, and delays in delivery of the materials by suppliers[4]. These problems were handled by increasing the number of contract packages by dividing them into small sizes of 40 million rupees or less, and, as for consultants and constructors, by canceling contracts with employees who were causing negative effects and recruiting and contracting with new personnel.

The fourth factor was that it took one year to start up the project, since establishment of PMU, the organization to practically control the project, took long time. Thereby, staff

[3] The details are summarized in the Comparison of the Main Plan and Achievements at the end of this report.

[4] Judged by the project completion report submitted by the executing agency to JBIC.

appointment was delayed, and further, the transfer of blueprints from the executing agency to consultants took time.

The fifth involved problems beyond the supervisory scope of the executing agency, such as the issue of securing land in Sindh Province, the issue of land aquisition and materials in Punjab Province, landslides in North-West Frontier Province, and increase of drainage ditches to cope with rainfalls in Balochistan Province.

2.2.3 Project Cost

The planned project cost at the time of appraisal totaled 13.492 billion yen, while the actual project cost was 11.943 billion yen. The decrease was due to the depreciation of the currency in Pakistan that exceeded inflation.

2.3 Effectiveness (Rating: a)

This project was economically and socially beneficial for the project target areas, so as to decrease distance, time, and transportation costs from rural areas to their neighboring communities. Therefore, this project has largely achieved its objectives, and effectiveness is highly satisfactory.[5]

2.3.1 Expected spread of effects

At the time of evaluation, the production of effects shown by the black line in Fig. 2 was expected.

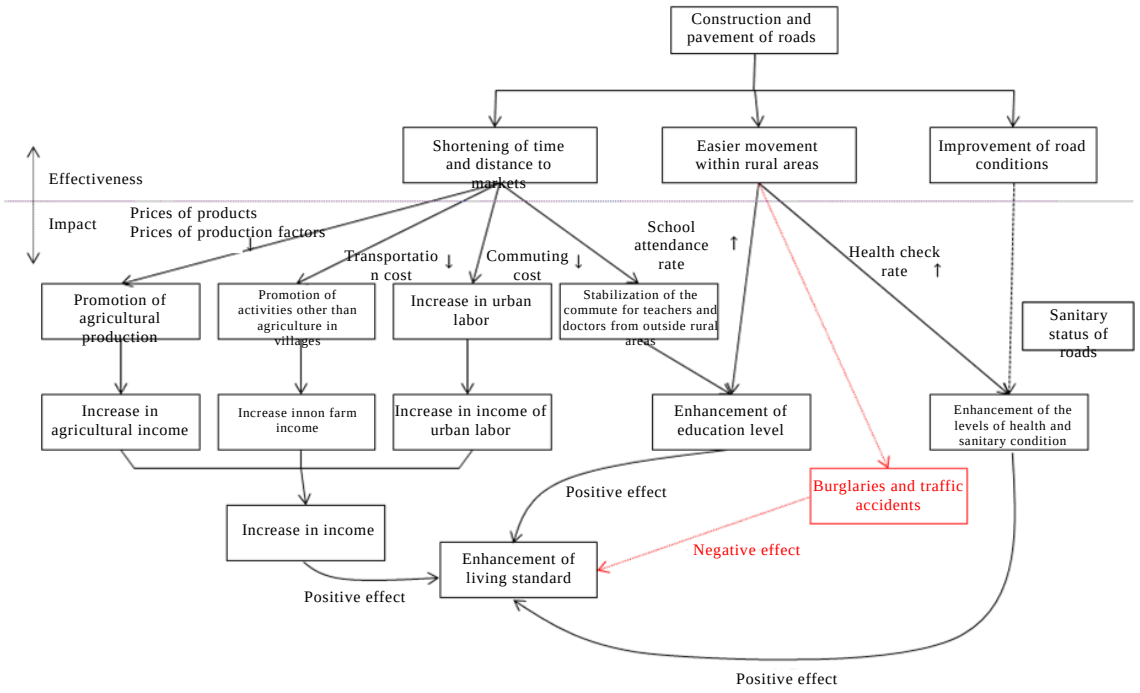
Construction and pavement of roads shortens the time and distance from villages to markets, makes movements within villages easier, and enhances the condition of road surfaces. An economic impact is expected mainly due to the shortening of time distance to markets, and a social impact is expected mainly due to the easier movement within villages and to the improvement of road conditions.

One of the characteristics of Pakistan is its variety. With a project like this one which covers almost all of Pakistan, the production of effect varies from area to area. As seen in 2.4, project effect is considered to have contributed to the reduction of the gender disparity. Although low social status of women is common almost all over Pakistan, the

[5] Since the political situation in Pakistan was quite unstable in the fiscal year of ex-post evaluation, the field survey was forced to be very much limited. The policy taken for this report was 1) to write on the production of effects based on the report of JBIC's Special Assistance for Project Implementation (SAPI) in FY2004 and on the information of *Rural Access and Mobility in Pakistan* (2005) by the World Bank, and 2) to confirm that the situation stated in JBIC report and that of the World Bank's information have not drastically changed in the last several years, by conducting a short-term field survey in March 2008. For the field survey, the expert who was in charge of the survey in the area for the JBIC's Special Assistance for Project Implementation (SAPI) was requested to come along, and opinions were exchanged extensively on the method to judge the production of effect, which took into consideration not only the survey target areas but also the variety in entire Pakistan.

degree of impact on gender differs between very conservative areas and not very conservative areas. Selection of a typical sample is quite difficult. With JBIC's Special Assistance for Project Implementation (SAPI), production of project effects was surveyed by selecting the five villages in Table 2 with the policy of selecting as various a sampling as possible with consideration to security at the time of the survey, location of the project, and existence of irrigation facilities, etc.[6] For this ex-post evaluation, observation in these five villages was used as the main materials for judgment.

Fig. 2 The logic that had been assumed



Source: The evaluators

Table 2 Target areas of JBIC's Special Assistance for Project Implementation (SAPI)

Project target area (village)		Province	Characteristics	
1	Takht Pari	Punjab	Suburb of a big city	Non-irrigated area
2	Manak	Punjab	Suburb of a big city	Irrigated area
3	Chak 76/5R	Punjab	Suburb of medium and small-size cities	Irrigated area

[6] With the ex-post evaluation, field survey was conducted at three locations of projects, which were Takht Pari, Manak, Kabula

4	Kabula	Punjab	Rural area	Irrigated area
5	Manjhai	North-West Frontier	Rural area	Non-irrigated area

Source: The report of JBIC's Special Assistance for Project Implementation (SAPI)

2.3.2 Shortening of time and distance

Construction and pavement of rural roads expected to reduce the time and monetary costs of movement among neighboring urban areas. As shown in Table 3, this shortening of time and distance is observed.

Table 3 Shortening of time and distance to markets

Project target areas		Takht Pari		Manak	Chak 76	Kabula	Manjhai	
Neighboring urban areas		Raiwat	Rawalpindi	Raiwand	Yousaf Wala	Pak Pattan	Arif Wala	Tamergarah
km	Before the project	26		22	25	44	13	22
	After the project	12		8	8	26	13	9
	Impve-ment rate	46.2		36.4	32.0	59.1	100.0	40.9
min.	Before the project	55	90	60	90	120	30	90
	After the project	30	60	20	20	60	30	60
	Impve-ment rate	54.5	66.7	33.3	22.2	50.0	100.0	66.7
rupees/ visit	Before the project	25	40	25	20	40		20
	After the project	15	25	10	10	26	5	8
	Impve-ment rate	60.0	62.5	40.0	50.0	65.0		40.0

Source: The report of JBIC's Special Assistance for Project Implementation (SAPI)

Construction of new roads and pavement almost automatically enhanced the convenience of movement within villages. In addition, it is inferred that sanitary condition was improved by the pavement in comparison with the road covered by dust and sand.[7]

Table 4 Survey on the traffic at project target roads

Type of vehicle	**Total traffic (number of cars)**				**Growth rate (%)**		

[7] According to the interview at the time of the field survey.

Standard-sized car, 4WD	170,581	301,234	323,000	1,936,195	76.6	7.3	499.4
Bus	26,583	51,176	57,557	109,103	92.5	12.46	89.56
Truck	45,842	59,815	62,273	204,110	30.5	4.10	241.23
Motor bike	138,335	548,779	605,800	1,324,403	296.7	10.40	118.6
Light car	21,485	45,466	45,466	96,308	111.6	20.20	120
Others	23,357	183,429	215,071	433,215	685.3	17.3	101.4
Total	**426,183**	**1,189,899**	**1,311,153**	**4,103,334**	**155.9**	**71.76**	**1170.18**

Source: MLGRD

Table 4 is the summary of the results of a traffic survey conducted by the MLGRD, project executing agency, on the roads which had been completed as of 2002.

2.3.3 Economic internal rate of return (EIRR)

It is not calculated, as is with preceding similar projects.

2.4 Impact

Impacts of this project can be summarized by dividing them into the two aspects of economic development and social development.

Economic impact Economic effects are brought about, with the shortening of time and distance to markets as the main factor.

Firstly, contribution towards agricultural development was assumed at the time of appraisal. The improvement of access from rural areas to markets enables prompt transportation of agricultural products to the markets with appropriate timing. The same products can be sold with higher prices, and it leads to production increase. At the same time, it becomes easier to procure the elements necessary for agricultural production at markets. This means, when considering transportation costs, a reduction of the price of input goods, which also leads to production increase. An example of this assumable effect is an increase in the production of dairy products, caused by increase in the number of livestock, that is caused by reduction of the cost to procure the feed for buffalos at markets. Access to credit also controls production activities. Facilitation of access to ADBP[8] through improvement of rural roads stimulates production activities of farmers. (See Table 5)

[8] ADBP: Agriculture Development Bank of Pakistan

Table 5 The project's impact on agricultural production (one household)

(Unit for all grains is mound, that for milk is liter)

	Takht Pari		Manak		Chak 76		Kabula		Manjhai	
Before or after the project	Before	After	Before	After	Before	After	Before	After	Before	After
Cereals										
Wheat	20	27	21	25-30	25	30-40	25	35	22	32
Sorghum bicolor	500	400								
Maize			600	700	40-50	60-80	400-500	700		
Rice					25	30-40			30	40
Cotton					8-10	10-15	15	20		
Sugar cane							700	900		
Milk										
Buffalo	4	7	7	18	4	8	7	10	7	7
Cow	5	59	10	16	6	16	9	14	8	10
Goat	5	215	2	15	2	5	3	4	2	2.5
Sheep	2	2	2	15	2	5	3	3	2	3
Access to credit (min.)	60	30	60	20	90	60		20	90	60

Source: The report of JBIC's Special Assistance for Project Implementation (SAPI)
Mound is a unit in Pakistan used to measure agricultural outputs. One mound is equal to 40kg.

These are thought to be all the impacts assumed at the time of appraisal, but there is no guarantee that these will be realized. However, according to the report of JBIC's Special Assistance for Project Implementation (SAPI), agricultural production in the project target areas has been activated after the project in comparison with that before the project.[9]

As a background to the increase in the production volume of agricultural products, there is the fact that the access to credit became easier. According to the JBIC's Special Assistance for Project Implementation (SAPI), in addition to a increase in the repayment rate, there is an example of added value of dairy products being enhanced by constructing dairy farms by using the credit of ADBP after road construction in a rural area. When considering poverty reduction through credit, not only the effect of the reduction in credit cost for the side of demand for credit (borrower) but also the effect of the reduction in monitoring cost for the supplier caused by the road construction can be

[9] The relationship between price change and agricultural output can not necessarily be analyzed by a simple producer model. According to the data of Sheikhupura District in Punjab Province, when deciding agricultural output, taking risk factor into consideration is important and incomplete markets for products and of those for production factors need to be noted, in accordance with an analysis done in "Insurance Market Efficiency and Crop Choices in Pakistan," (*Journal of Development Economics*, 2002) by T. Kurosaki and M. Fafchamps, and summarized in *Development Microeconomics* by Takashi Kurosaki (Iwanami Shoten, 2001). Based on this analysis result, even when the road construction in rural areas and production increase in agricultural output occurred at the same time, it cannot be concluded that the former is the cause of the latter.

taken into account. For the development of a credit market, solution to the distortion caused by the asymmetric information between creditor and debtor is much more important than credit cost. Have the roads in rural areas made the exchange of mutual information easier, and has easier contact helped the credit market to move towards its development? Enough information to resolve these points could not be collected by this survey. However, the results of interviews showing the repayment rate having been improved can be judged as material to indicate that the credit market is going to function efficiently through the road construction in rural areas.

Table 6 Increase in non farm income

	Expansion of commutable area	Wage (Daily, rupees)	Aspects of women's development
Takht Pari	Only neighboring town Sawan -> Employment in Rawalpindi increased. Employment was also created at a housing development site in neighboring Bahria Town.	60 -> 120	Before the project, women were prohibited from going out. After the project, women have started to work as teachers and in healthcare jobs.
Manak	From having only the neighboring town of Rewand, daily commuting to Riwand has become possible.	70 -> 150	Before the project, women were prohibited from going out. After the project, women have started to work as teachers and in healthcare jobs. Some are working in Lahore as housemaids.
Chak 76	Commutable area has not changed. Commuting cost, however, has dramatically decreased thanks to the constructed roads (Table 3).	60 -> 100	Before the project, women were prohibited from going out. After the project, women have started to work as teachers and in healthcare jobs. Carpet production by women's groups has started.
Kabula	Commuting to the industrial complex in Pakpattan has become possible.	65 -> 100	Before the project, women were prohibited from going out. After the project, women have started to work as teachers or for governmental organizations and in healthcare jobs. Some are working in Pakpattan as housemaids.
Manjhai	Commutable area has not changed. Commuting cost, however, has dramatically decreased thanks to the constructed roads (Table 3).	60 -> 100	Some are working as teachers in the schools in villages.

Source: The report of JBIC's Special Assistance for Project Implementation (SAPI)

Secondly, the contribution to the increase in non farm income has been observed as summarized in Table 6. At the time of appraisal, employment in neighboring urban areas and employment by activation of village economies were assumed.

In the project target areas, an increase in non farm income has been observed. Employment with higher wages in neighboring urban areas has become available and

traffic services to urban areas have been improved. It is inferred that the decrease in car maintenance cost caused by the improvement of road conditions has resulted in the competition among traffic service suppliers.[10] Improvement in women's income is remarkable. In many villages, women were prohibited from leaving their villages before the project. Road construction has enabled them to become employed outside their villages. Conservative attitudes about gender discrimination have become weaker and this may also be the reason. Carpet production by women's groups has started in Chak 76/5R. These things can be understood as proof of road construction of rural areas having promoted the development of rural areas.[11]

In addition, there are many cases wherein construction of rural roads has lead to the construction of factories in villages, which has resulted in employment. Construction of rural roads has created a flow of people and products not only from villages to outside but also from outside into the villages. In Manak, for example, a constructed rural road enabled transport of products to market, so a brick factory was constructed, which created employment.

Social impact Increase in mobility lays the basis for the economic impacts of agricultural development and of improvement in non farm income. The shortening of time and reduction of cost of access to neighboring urban areas have broadly widened the action radius of villagers. Especially, women's status has changed from not being able to walk around freely outside in the traditional society to being able to spatially widen their action radius. Employment outside their houses has lead to strengthening their ties with the society. Increase in mobility itself should be valued as a social impact.

This effectiveness has not been brought about equally to male and female, and this is a characteristic of Pakistan. It was once rare for women to walk around outside in many villages, and working outside villages could not even be imagined. It should be emphasized that an increase in mobility, caused by road construction, has brought about the change in social structure that involves gender discrimination.

According to a World Bank survey, it is confirmed that the impact of educational aspects from pavement of roads contributes to the reduction of the gender disparity (See Table 7). Although the effects on health and sanitary aspects are not cleafr, it is noteworthy that female doctors' sphere of activities has expanded through construction and pavement of roads results in enlarging the sphere wherein women can get the benefits of medical care. The impact of the expansion of female doctors' sphere of

[10] Based on the analysis by the report of JBIC's Special Assistance for Project Implementation (SAPI) and on the on-site interviews during the survey at the time of post evaluation.

[11] Trial for independent improvement of income on the level of household handicraft industry cannot be realized until road, an infrastructure to inexpensively transport the products, is constructed.

activities is emphasized in the World Bank's survey and in the field survey at the time of post evaluation.

Table 7 World Bank's estimated difference in education, health, and sanitary condition

	(a) Villages with all-weather motorable roads (%)	(b) Villages without all-weather motorable roads (%)	(a)/(b)
Girls Net Primary School Enrollment Rate	41	27	1.52
Boys' Net Primary School Enrollment Rate	56	49	1.14
Female Literacy Rate	23	13	1.77
Male Literacy Rate	53	44	1.20
Pre-natal consultation	28	14	2.00
Post-natal consultation	7	5	1.40
Births assisted by skilled attendant	58	39	1.49

Source: *Rural Access and Mobility in Pakistan* (2005), World Bank

Improvement in the environment of medical care for women has been confirmed by JBIC's Special Assistance for Project Implementation (SAPI) and on-site interviews conducted at the time of ex-post evaluation as well as World Bank's survey.[12]

[12] Improvement in net primary school enrollment rate could not be confirmed in the on-site interviews conducted at the time of post evaluation. Although it was said that commuting to school has become more comfortable, neither teachers nor students said that net primary school enrollment rate had improved.

Column: Social Structure

It is true that this project has had an impact on the rural development. Especially the contribution to gender disparity issues was big, and this evaluation also focuses on this point. This evaluation considers the impact, for example, that the rural roads enabled female doctors to stably work in medical facilities in villages. There are examples of it being said that movement by car enabled women to move while keeping their faces covered. It is judged right to weigh the production of this effect heavily when making an evaluation of the project.

However, regarding impacts, deeper and longer-term examination is necessary. When we reflected on the policies of this evaluation while conducting the survey at the site, we noticed that we were evaluating production of effects based on the assumption of the existing structure with social disparity. This evaluation highly values production of effects on the assumption of a gender disparity structure. Examination by this evaluation has not fully considered whether the impacts could lead to the solution of gender disparity or if they would lead to the entrenchment of the structure that causes the disparity. It is impossible to judge this since not long has passed since project completion, but we have mixed feelings as evaluators who could make only a limited evaluation policy.

It should also be noted that creation of employment opportunities can not be identified with employment of villagers. The reason is that people from outside villages are employed very often. What is more, it is difficult to find a solution when the cause is not a problem of employer but an issue of villagers' antipathy towards it being known by others that they have a kind of job to be ashamed of. In the area with a tradition of contempt for certain jobs, people feel they do not want to be seen by other villagers when they are engaged in a kind of job regarded with contempt. For example, in a culture where people do not want to be seen by other villagers when they are engaged in physical labor, almost none of the villagers benefit even if a factory is invited to the village.

The significance of this project should not be underevaluated. Without improvements in infrastructure, poverty cannot be solved easily. On the other hand, for further promotion of the rural development, additional policies may be needed to solve structures of gender disparity and of job contempt.

There is a possibility that increase in exchange with the outer world, which was brought about by increase in mobility caused by this project, will gradually create changes in such social structure. On the contrary, there also is a possibility that the structure that causes disparity will become entrenched. This evaluation could not fully survey what social impact the project would bring about in a long period of time. It sees the production of effects on the assumption of a structure with disparity with short-term view. If the verification of long-term effects of this project is conducted several years later, the importance of ODA loans for infrastructure improvement of this type may become clearer. It can be applied to any project, but we would propose to practice evaluation again several years after the project completion for the project whereby great social impact is expected like this one. We strongly felt so as evaluators who could not help making evaluation soon after the project completion.

Other impacts All of the target areas of this project are rural areas remote from urban areas, which are not located close to national parks, hunting preserves, or wildlife preserves, so negative impacts on the nature and the residents living in the vicinities are almost not seen. Construction waste has been properly disposed of and damages such as air pollution from dust have not been caused. North-West Frontier Province had problems of timber-felling in the forest, the destruction of natural waterways, and falling pebbles from hilly land onto farmland, but the measures of tree planting, construction of new waterway, and removal of fallen pebbles were taken. As for the problems on land acquisition, two cases in North-West Frontier Province, one in Punjab Province and one in Sindh Province were reported, but all of them have been solved in a short period of time. There were problems of cemetery transfer but no problem of resident transfer was reported.

Examples of negative impacts are that traffic accidents have increased because vehicles run too fast due to the pavement and that, according to an interview, burglaries

have increased since break-in and escape have become easier (red line in Fig. 2). [13]

2.5 Sustainability (Rating: b)

2.5 Sustainability

Though the project has a lack of budget and some problematical points with the current conditions, sustainability of this project is moderate.

2.5.1 Executing agency

2.5.1.1 Operation and maintenance system

This project was executed by the system that Ministry of Local Government and Rural Development (MLGRD) of the central government as the executing agency, and the Communication and Works Departments (CWD) [14] of each provincial government conducted progress management on actual construction works. Maintenance management was transferred to districts, and each district has grasped the physical needs and traffic, made a plan for maintenance, and has been practicing the maintenance by getting budget distribution from provincial government through WSD (former CWD).

2.5.1.2 Operation and maintenance skills

The total number of staff for road maintenance in the project target areas is 342, including technicians and managers[15], and they have adequate experience and ability for their respective duties. There are enough furnishings such as equipment and computers. Although they know that training for personnel such as engineers, technicians, and people to formulate plans and budgets, are necessary to the periodic operation and maintenance of the roads, they have not been able to realize training for lack of budget.

Fig. 3 Repair of road edge in Kabula, Punjab

Source: Photo taken at the time of survey at the site in March, 2008

Actual work for maintenance is repair of holes and crumbled banks. Fig.3 shows the people working to restore the sand crumbled from road edge by using shovels. According to an interview result, special skills are not necessary for this work, but the work could be much more efficient if mechanized.[16]

[13] It is just a result of interview, and we could not get quantitative data.

[14] CWD: Communication and Works Departments (which are current WSD: Works and Service Departments)

[15] Information as of May, 2005

[16] Machines for maintenance are out of the scope of funding of this project.

2.5.1.3 Financial status

Financing is insufficient. For example, out of the necessary amount of 800 million rupees in Sindh Province, only 600 million rupees have been secured.[17]

2.5.2 Operation and maintenance status

Since immediately after the construction, roads have been used, and there was no problem in the operation at the primary stage. Operation and maintenance was transferred to the engineers of each district after the construction, and operation has been done appropriately from the viewpoint of engineers.

The roads that had problems within one year after construction were improved by contractors. For example, in Abbottabad of North-West Frontier Province, a road was closed due to landslide and mudflow from rain and snow, and mudflow was removed and protection facilities were made to prevent recurrence of the problem in the future. In Balochistan, a road bank was destroyed by rainfall, and protection facilities were made to prevent recurrence of this problem in the future.

At present, fatal problems for road traffic have not occurred. However, according to information from Sindh Province, road conditions have deteriorated day by day, and rehabilitation is necessary. Information from Punjab Province states that, because the district government, which is in charge of actual maintenance, is interested in the construction of new roads, the current status of many roads is that they are in critical condition.[18]

Fig.4 Crumbling of the bank due to overloading of sugar cane and to buffalos

Source: Photos taken at the time of survey at the site in March, 2008

[17] Information from relative organization

[18] Both situations in Sindh and Punjab are based on the replies to the questionnaires given by the survey group. Although it was said that the construction of new roads is restrained by allocating budget for maintenance, the situations confirmed in Table 1 was not fundamentally changed at the time of ex-post evaluation and the need for new roads in rural areas is quite big. Under the circumstances, when considering the distribution of total budget allocated for the road sector, there is a possibility that higher marginal effects can be expected by the construction of new roads than maintenance. As a project, it seems that the budget for maintenance is insufficient to an irrational extent, but it may be rational from the view point of budget distribution of the whole road sector. How to distribute the budget for the construction of new roads and for maintenance should be judged based on the comprehensive survey on the road sector in all of Pakistan.

Factors in the deterioration of road conditions are the traffic of vehicles with heavy loads that causes overloading on the road and the domestic animals that level the banks when mounting from field to road (See Fig. 4). There was an opinion that maintenance cost should be covered by collecting tolls from users[19], but it is considered difficult to set a toll fee that does not contradict the benefit of the roads, since many of the users are poor and do not have much cash income.

3. Conclusion, Lessons Learned and Recommendations

3.1 Conclusion

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

3.2 Lessons Learned

None

3.3 Recommendations

None

[19] According to the replies in Punjab Province to the questionnaires given by the survey group and by the interview at the time of the field survey

Comparison of Original and Actual Scope

Item	Plan	Actual
Output		
[Civil works]	Main works: Earth fill, roadbed, pavement, crossing waterway Road Spec: Roadway width: 3.7 m, Banks on both sides: 1.5 - 2.0 m, asphalt pavement	As planned
[Construction of local roads]	Total length: 730 km Punjab: 350 km (14 districts) Sindh: 140 km (12 districts) North-West Frontier: 140 km (6 districts) Balochistan: 100 km (1 district)	Total length: 941 km Punjab: 425 km (15 districts) Sindh: 180 km (12 districts) North-West Frontier: 179 km (8 districts) Balochistan: 130 km (1 district)
[Operation]	- Project Management Unit (PMU): set under MLGRD - Sub-Project Management Unit (Sub-PMU): set under CWD of each province	As planned
[Consulting services]	- Project Management Consultants Foreigners: 97 M/M Local consultants: 278 M/M for technical guidance (civil engineering, management skills) - Section Consultants Local consultants: 1,548 M/M for detail design, construction management	- Project Management Consultants Foreigners: 152 M/M Local consultants: 310 M/M for technical guidance (civil engineering, management skills) - Section Consultants Local consultants: 2,040 M/M for detail design, construction management
Project Period	May, 1994 - June, 1999 (60 months)	May, 1994 - June, 2005 (132 months) Ratio to the plan: 234%
Project Cost		
Foreign currency	6.739 billion yen	10.545 billion yen
Domestic currency	6.753 billion yen (1.381 billion rupees)	1.398 billion yen (N.A.)
Total	13.492 billion yen	11.943 billion yen
ODA loan portion	11.468 billion yen	10.545 billion yen
Exchange rate	1 rupee = 4.89 yen (as of November, 1992)	(N.A.)