

New Approaches on International Cooperation - Kyoto University Initiative

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1 . Introduction

In this paper, new approaches on international cooperation emanating from the Department of Civil Engineering of Kyoto University are introduced. As shown in the code of ethics of the Japanese Society of Civil Engineering, one of the purposes of our activities is to improve the well-being of mankind through international communications.

The lack of passability of rural roads is identified as one of the main causes of poverty of the rural people among developing countries. Due to the difficulty in accessing markets to sell their agricultural produce and other goods in rainy season, the rural people are locked into subsistence farming. Product buyers also cannot access/reach the villages, thus crops are not exchanged for money and therefore resulting in harvested crop rotting. In this study, as a measure to overcome these problems, a new design for all-weather rural roads with “do-nou” is being developed; this will not in anyway be through surfacing but by simple and efficient method in which the rural roads are maintained by the rural people themselves. In the new design, the maintenance of the rural road to keep it passable is conducted by manual labor and available materials in the developing countries, therefore the local farmers can participate in the process of restoration of the road. Through this continuous community road maintenance participation, unpaved roads will be made passable even in the rainy season. Besides, the participation promotes community ownership of the project and that gives them the motivation to solve their myriad problems by themselves and ultimately reduce poverty amongst them¹⁾. In order to meet goals of this newly developed technology, it is important that the technology is practically conducted and demonstrated amongst target communities so that it contributes to the improvement of the lives of the rural people. In this study, three approaches have been used (Fig.1). In Papua New Guinea the rural roads were maintained using do-nou by the community people in collaboration with Japanese volunteers resident in that country. In Philippines, a walkway in the campus of the Mariano Marcos State University was constructed by the students. In Kenya, a technical cooperation project of JICA aimed at improving rural infrastructure has used do-nou through the community people to improve a road. In this paper the activities in Philippines is reported.

2 . The Cooperation with Mariano Marcos State University in Philippines

2.1 Mariano Marcos State University

The Mariano Marcos State University (MMSU) is located in the north of Luzon island of Philippines (Fig.2). This university has implemented some extension delivery approaches/projects which included training and continuing education, technology development, promotion, and commercialization, applied communication. The results of the study in the university have contributed to the development of the rural site near MMSU. They have strong connections with

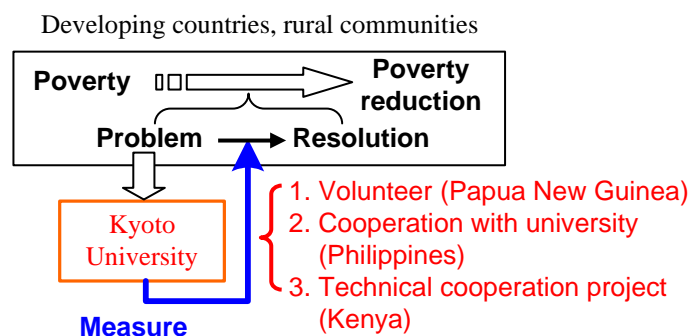


Fig.1 Three approaches for technical transfer

Keywords: International cooperation, extension, technical transfer, community

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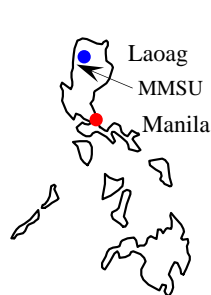


Fig.2 Location of MMSU

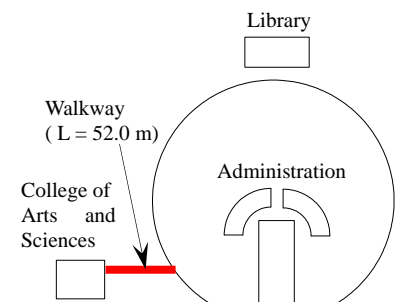


Fig.3 Plain view of the walkway

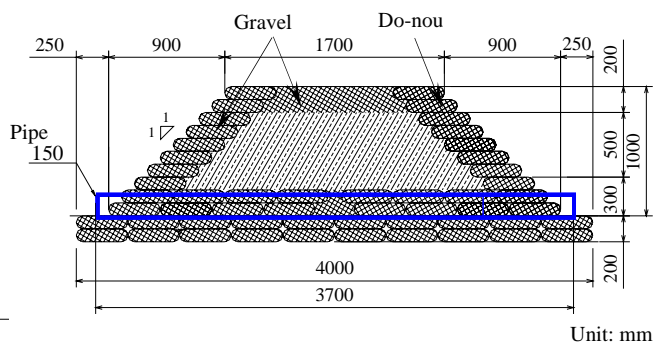


Fig.4 Cross section of the walkway

Table 1 Quantity survey

Item	Amount	Unit cost (yen)	Cost (yen)	Notes
Do-nou bags	6,800	21	142,800	Made in Philippines
Gravel	172.0 m ³	341	58,652	Cost and freight
PCV Pipe 150	36 m	750	27,000	4 m x 9
Plate compactor	5 days	750	3,750	Lease fee
Labour	81	750	60,750	3 persons x 27 days
Snacks for students	500	88	44,000	100 persons x 5 days
Total			336,952	



Fig.5 Situation of the construction

Non Governmental organization (NGO) groups. Through the linkage of MMSU, technology will be transferred to the rural areas near the university. It was a big advantage to have the cooperation with this university.

2.2 Construction of Walkway

The walkway connected the College of Arts and Sciences and the circumferential road (Fig.3) was constructed. This route will be a short cut to the library. The cross section of the walkway is shown in Fig.4. During rainy season, the water level becomes about 30 cm from the surface of the ground. It prevents students from crossing to the circumferential road or CAS. The bearing capacity of the ground is 100 kpa. Four layers of do-nou packed with gravel formed the foundation for a retaining wall which was sloping at 45 degree erected from 8 layers of do-nou. To drain the water the PVC pipes were installed at every 6 m intervals. The surface of the do-nou at the slope was covered with mud and grass planted. The bills of quantities are shown in Table 1. Preparation for the construction was conducted by a coordinator who is a professor in MMSU. The construction was conducted from Monday to Friday by the labours. On Saturday a total of about 50 students participated in the construction both in the morning and afternoon (Fig.5). It was one of the National Service Training Program, which is a compulsory subject to first grade students of all public universities in Philippines. In this program, students usually participate in volunteer activities in the rural areas. This time the students participated in maintenance of their own road. The civil engineers of the MMSU got the do-nou technology, then they supervised the labour and students during constructions. Through the construction the do-nou technology was transferred.

3 . Conclusion

In this paper new approaches for technological transfer are introduced. It is evident that it is not only important to develop efficient technology to overcome problems in developing countries but also make it homegrown by conducting it practically among the rural community enable them access markets, and services hence poverty reduction. The next phase of this effort will target on sustainability and expansion. .

References 1) Kimura, M. and Fukubayashi, Y., The Sixth ATWS KENYA CHAPTER International conference, Kenya, 2005 .
2) Kimura, M. and Fukubayashi Y., Proceedings of the 61th JSCE Annual Meeting, pp.187-188, 2006.