ABSTRACT: This research was designed to review improvements of efficiency of Analytic Hierarchy Process (AHP) as a way to facilitate decision-making on project priority in international rural development in the following ways; to apply an AHP method; to discover issues that might arise in the research preparation, conduct, and analysis; and ultimately to expand a practical use of AHP in recipient countries. The survey questioned residents of the Dadeldhura district in Far-Western Region of Nepal, on the assumption that one donor country has a plan to implement projects for rural development in a community. This research collected 104 questionnaires. 55 questionnaires with a Consistency Ratio (CR) greater than 0.2 were excluded and 49 questionnaires were accepted for AHP analysis. The rejection rate reached 52.9%. The results of AHP analysis showed that residents considered Number of Beneficiaries the first priority in terms of Criteria. They selected Education as the first priority project that most reflected their opinion. The top three priority projects were Education, Public Health/Hygiene/Sanitation, and Income Generation. Although the AHP method can be a useful tool in deciding project priority, some problems were revealed during the process of preparing and carrying out a survey. By addressing these problems and improving on its application, the AHP method can be expected to contribute to the academic field of international rural development and to allow for a more accurate selection of projects that fully reflect residents’ needs at the early stages of implementation in rural communities of recipient countries.

Key words: AHP, International Rural Development, Pairwise Comparison, Absolute Measurement, Nepal

STUDY AREA AND METHODOLOGY

Nepal is located in South Asia and includes eight of the existing 14 summits in the world. Geographically, it is an
isolated country surrounded by the Tibetan Autonomous Region of China and India with roughly rectangular in shape. Based on the District Development Profile of Nepal 2010/11, Nepal is divided into three major ecological regions: Mountain, Hill, and Plain. These regions occupy 35%, 42%, and 23% of the area, respectively. The altitudes range from 70 to 305 meters for the Plain region; from 305 to 4,877 meters for the Hill region; and from 4,877 to 8,848 meters for the Mountain region. Administratively, Nepal consists of 5 regions: Eastern, Central, Western, Midwestern, and Far-Western. The study was accomplished in the Amargadhi municipality Dadeldhura district, one district forming the Far-Western region. It is situated at 1,848 meters above sea level and approximately 770 Kilometers away from Kathmandu, the capital of Nepal. Wheat is the most widely cultivated crop in the Dadeldhura district. The Amargadhi municipality is the center of transportation and administration in the Dadeldhura district, and agriculture and business are the chief industries in this region.

Analytic Hierarchy Process (AHP) is known as a multiple-criteria decision analysis method and has been applied to such areas as selection, evaluation, benefit-cost analysis, priority, development, resource allocation, decision-making, forecasting, and medicine (Vaidya & Kumar, 2006). To apply AHP to international rural development, a hierarchy structure needs to be created (see Fig. 2 as an example). This structure is divided into the levels of Alternatives, Criteria, and Final Goal. The Alternatives level is the target of a project priority and includes 8 rural development projects:

1) *Infrastructure* supports making the establishment of facilities such as rural roads, irrigation canals/ponds, community buildings and others.

2) *Income generation* includes all activities and projects that generate capital.

3) *Public health/hygiene/sanitation* provides all activities and projects to maintain the residents’ health conditions.

4) *Education* refers to all activities and projects that promote students’ abilities to learn and think.

5) *Vocational training* concerns all activities and projects designed to create jobs in a community.

6) *Social service support* includes all activities and projects to improve accessibility to fundamental services by supporting health centers, banks, administrative agencies and non-government organizations (NGOs).

7) *Residential environment improvement* comprises all activities and projects to create a healthy and comfortable residential environment, such as replacing and maintaining hygienic kitchen, developing a regular supply of clean drinking water, cultivating flowers and fruit trees in community areas, and establishing recreation spots within the community.

8) *Tourism development* refers to all activities and projects to promote tourism.

Economic Impact, Environmental Consideration, and Number of Beneficiaries were selected as the categories in the Criteria level. Economic Impact refers to an appraisal standard on how much a project affects a regional economic development. Environmental Consideration makes a valuation basis on the level of influence a project has on the natural environment in the study area. Number of Beneficiaries is based on how many residents can share in the benefits of a project. The Final Goal level describes a priority decision of international rural development projects.

In cases where there are many alternatives, the number of pairwise comparisons also increases. When a pairwise comparison is applied at the Alternatives level in this study, it caused a time-consuming analysis and made the Consistency Index (CI) worse (Eizo & Taka, 2012). CI is