

A photograph showing two women in a workshop setting. They are looking upwards at a large, dark, circular mechanical component, possibly a wheel hub or brake assembly, which is suspended or mounted. The woman on the left is holding a silver crescent wrench. Both women are wearing dark jackets. The background shows a workshop environment with some structural elements.

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Gender Equality Results

Case Studies: Bhutan

Asian Development Bank

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Micro, Small, and Medium-Sized Enterprise Sector Development Program

Key Points

Development aims and impacts:

- Bhutanese women are active in the micro, small, and medium enterprise (MSME) sector, mainly as micro entrepreneurs. Their participation in, and contribution to this sector must be addressed if they are to benefit from a policy, strategy, and institutional framework designed to encourage MSME growth.
- Enhancing access to credit is key in supporting the heightened interest of women—especially young women and rural women—in entrepreneurship.

ADB processes and management tools:

- Allocating a specific percentage share of credit lines to women in rural areas contributes to mitigating rural poverty and curbing rural-urban migration.
- Identifying niche markets for Bhutanese MSMEs could potentially benefit women who currently produce low-volume, high-value goods already identified by the project (e.g., medicinal plants, organic herbal plants, and essential oils).

Project Basic Facts

Grant approval number: 0088/0089 – BHU (SF)	Project Grant (for credit and Bhutan Development Finance Corporation/ BDFC restructuring): BDFC; (for improving quality control and product standards): Standards and Quality Control Authority.
Dates:	Overall project cost: \$9 million (Program Grant)
Grant approval: 21 November 2007	Financing: Asian Development Fund
Grant effectiveness: 16 May 2008	Sector: Economic Growth
Closing date: 31 December 2010	Gender classification: Some gender benefits
Executing agency: Ministry of Finance	
Implementing Agencies:	
Program Grant (MSME policy reform): then Ministry of Trade and Industry (MTI) ¹	

Project overview and ADB documents posted on ADB website at: www.adb.org/Documents/RRPs/BHU/39221-BHU-RRP.pdf

¹ The reorganization of 2009 created the Ministry of Economic Affairs, which comprised several departments, including the Department of Industry (DOI). The DOI's MSME Division serves as the program and project management unit (PPMU) of the Micro, Small, and Medium-Sized Enterprise Sector Development Program.

What are the project's main aims and approaches?

While Bhutan has experienced impressive economic growth of about 7% per year on average since the 1980s, poverty remains an important social and economic issue, as an estimated 32% of the population lives at or below the official poverty line. Further, between 2005 and 2010, approximately 69,000 school leavers entered the labor market. Creating employment for these new labor force entrants poses a challenge to the Government of Bhutan. Private sector development, with an emphasis on rural-based micro and small businesses, would significantly contribute to absorption of these new labor force entrants and to reducing rural-urban migration. Support to the private sector, and in particular, support to micro-, small-, and medium-scale enterprises (MSMEs) in agro-processing, food production, manufacturing, tourism, and nonfarm rural economic activities is a strategic focus for the government in fostering broad-based economic growth and promoting equitable income distribution.

Bhutan's formal private sector comprises large-, medium-, small-, and micro-scale enterprises. Approximately 97% of all Bhutanese businesses are micro- and small-scale enterprises (i.e., companies with fewer than 10 employees and invested capital of less than Nu5 million), there being only a handful of medium-scale enterprises (companies with 100 employees or more). One of several constraints inhibiting MSME growth in Bhutan is limited access to finance.

The goal of the Micro, Small and Medium-Sized Enterprise Sector Development Program (MSMESDP)² was to stimulate growth of the MSME sector, and overall private sector development in Bhutan. The MSMESDP consisted of both a program grant for addressing policy reform issues and overall strengthening of the environment for MSME growth, and a project grant for providing financing for development of the MSME sector currently unavailable from the commercial market. The objectives of the MSMESDP included: (i) undertaking policy reforms for establishing an integrated policy, strategy, and institutional framework for MSME development; (ii) modifying laws and regulations so as to facilitate MSME expansion; (iii) increasing access to market-based finance; and, (iv) strengthening the country's business support infrastructure.

The MSMESDP grant supported formulation of a policy framework and sector development program that enabled expansion of the private sector. The goals of the sector development program's three subprojects were: (i) increasing the availability of, and improving access to, credit for MSMEs, particularly in rural areas; (ii) promoting business development skills that increase MSME competitiveness, and, (iii) providing support for program implementation and capacity building in implementing specific components of the MSMESDP. Program components included: (i) formulation of a policy, strategy, and institutional framework for MSME development; (ii) modification of laws and regulations in a way that facilitates development of business-related activities; (iii) expanding access to market-based finance; and (iv) strengthening business support infrastructure. The project grant consisted of three subprojects as follows: (i) a credit facility for financing the medium- to long-term credit requirements of MSMEs, particularly rural enterprises,

² ADB. 2007. *Report and Recommendation of the President to the Board of Directors on the Proposed Asian Development Fund Grant to the Kingdom of Bhutan: Micro, Small, and Medium-Sized Enterprise Sector Development Program*. Manila.

delivered through Bhutan Development Finance Corporation (BDFC); (ii) a cost-sharing facility that provided technical support to MSMEs that demonstrated the potential for growth, but which faced specific constraints; and (iii) capacity building support for program implementation and institution building.

Under the MSMESDP, more than 1,400 enterprises were to gain access to finance for business expansion and at least 250 entrepreneurs were to receive entrepreneurship training and technical support.

What are the key gender equality issues that relate to the project's aims?

Agriculture and home-based income-generation dominate the economic activities of Bhutanese women. In order to broaden the spectrum of income-generation opportunities available to women, the government has implemented programs for promoting entrepreneurship. However, success in promoting female participation in these programs has been mixed. For the period 2003–2006, female participation in both the comprehensive and basic entrepreneurship courses fluctuated, though women comprised 47% of all participants in 2006 as compared to 43% in 2003 and 2005. At advocacy workshops for spreading entrepreneurial culture and generating interest in income-generating activities in rural communities organized by the Rural Enterprise Development Program of the Ministry of Economic Affairs (MoEA) in the *gewogs* (clusters of villages), women comprised 41% of all participants, 55% of this 41% being female farmers. Other data from the Bhutan Chamber of Commerce and Industry (BCCI) demonstrate that men dominate this organization's representation, the exception to this being the Handicrafts Association of Bhutan, the membership of which comprises 58% women. While overall the data shows a somewhat mixed trend, interest in entrepreneurship among Bhutanese women appears to be on the increase.

Limited access to finance. Feedback from Bhutanese female entrepreneurs cites lack of access to finance as the most important barrier to setting up a new business, this result being equally true for expansion of existing businesses. In particular, the relatively high collateral requirements of commercial banks when lending to small- or micro-scale enterprises significantly constrains access to credit by micro-entrepreneurs. The major provider of credit to micro- and small-scale entrepreneurs is Bhutan Development Finance Corporation (BDFC), largely due to its extensive outreach program in both rural and urban areas. However, because BDFC is not a bank, it cannot accept deposits. Thus its only sources of funds for lending to clients are the government and international development agencies. Lack of access to funds thus significantly constrains BDFC's ability to lend to the micro- and small-scale entrepreneurs who comprise the bulk of its client base.

Access to business development services necessary for business expansion. Due in part to the propensity of female entrepreneurs to operate at the micro-enterprise level, awareness of the role that business development services play in business expansion is limited. Even for entrepreneurs aware of the importance of these services in business expansion, these business development services are widely perceived as being prohibitively expensive relative to the limited revenue stream of most micro- and small-scale enterprises.

How does the project involve women?

The project's only gender-specific design feature is the BDFC credit facility funded under subproject 1 that earmarks a minimum of 10% of credit extended to rural female entrepreneurs. The broad goal of this feature is that of improving the livelihood opportunities of rural women for whom access to credit—particularly in rural areas—is generally more difficult than for men. Further, this feature's focus on rural women is likewise a response to the relatively high incidence of poverty in rural areas, and is intended to help curb rural-urban migration. Nevertheless, relevant regulations specify that if the funds earmarked for lending to rural female entrepreneurs are not used for this purpose within 1.5 years from the date of grant effectiveness, then these funds automatically revert to BDFC's general lending pool. BDFC data confirm that women in urban areas are able to access credit from commercial banks.

How else could the project address gender disparities and benefit women?

While the project contained no explicit strategy for maximizing its impact on women, the studies and surveys conducted under its auspices were to improve the current level of knowledge concerning the role of female entrepreneurship in Bhutan, particularly if the data collected were disaggregated by sex as well as enterprise type and scale. Such information would allow a clearer picture of the opportunities, benefits, and disadvantages of owning and running enterprises in Bhutan, and how the latter relate to gender equity issues. This information would likewise be valuable in identifying export-oriented activities in which Bhutanese women might have comparative advantage. At a broader level, such data would be valuable both in reforming policy and in optimizing the government's strategy and institutional mechanisms for MSME development. Other possible areas for female-friendly niche markets are.³

- **Food production and Agro processing:** Bhutan produces a narrow range of fresh produce and a smaller range of processed food products. In 2006, the country's relatively unorganized food-processing sector comprised 99 micro- and small-scale enterprises, nine medium-sized enterprises, and nine large-scale enterprises, all firms in all categories being domestically owned. As women have traditionally dominated food production in Bhutan, development of this sector would seem to favor female participation.
- **Organic herbal products:** Bhutan's wide range of microclimates, significant degree of biodiversity, and tradition of producing crops without the use of agrochemicals suggest comparative advantage in the production of niche-market, low-volume, high-value goods such as essential oils, traditional medicines, high-value mushrooms, and incense. Since, historically, women have played a major role in the production of these goods in Bhutan, expansion of these activities could well be a means of increasing both female labor force participation, and raising the average level of income of Bhutanese women.
- **Handicrafts:** Historically, Bhutan's handicraft sector has faced significant marketing constraints, particularly in the export segment of the sector.

³ ADB. 2007. *Technical Assistance to the Kingdom of Bhutan for Preparing the SME/Microenterprise Development Program: Financing Component*. Manila

However, given an invigorated private sector, Bhutanese products could successfully develop a high-value export niche that exploits the burgeoning Asian home décor market. Examples of traditional products that may have comparative advantage in this regard include wooden statuettes, basket ware, vegetable plaiting material, incense, natural dyes, and hand-woven traditional Bhutanese textiles.

- **Service sector:** In recent years this sector has expanded rapidly, its output doubling over the two-year period 2004–2006. In fact, growth in the service sector has been so rapid that in 2005 it represented nearly 42% of nominal GDP. Moreover, there are numerous niche areas within the service sector that women could successfully exploit, this being particularly true of tourism.

What are the key achievements and remaining challenges?

BDFC's experience shows that allocating a minimum of 10% of all credit extended to rural female entrepreneurs proved to be an important step in expanding lending to this borrower segment. By the end of 2009, women comprised nearly 36% of BDFC's micro-loan borrowers. Further, nearly all of them borrowed for the purpose of financing micro-enterprises, approximately two-thirds of such borrowers residing in rural areas. These figures suggest that: (i) most female entrepreneurs operate at the micro-enterprise level; (ii) most micro-entrepreneurs reside in rural areas, and (iii) the actual credit requirements of female entrepreneurs greatly exceed the level estimated by planners.

Moreover, BDFC statistics indicate that women borrowing from the credit line provided under the project have substantial assets and hold land and property registration titles from the Bhutan National Bank and BDFC. Approximately 60% of such women reside in rural areas, while 40% hail from urban areas. BDFC's rural outreach program is extensive as a result of its mobile banking approach to service delivery that visits all *dzongkhags* (clusters of *gewogs*) each month. In addition to lending activities, during each visit, BDFC conducts campaigns aimed at raising awareness of the products and services it offers.

Which project features contribute to gender equality performance?

The stipulation that a minimum of 10% of BDFC's credit line be used for lending to rural female entrepreneurs provided an incentive for BDFC to reach out to this market segment, both in rural and urban areas. This in part explains why the number of women accessing credit significantly exceeded the level envisioned during project design.

What else should we look for when monitoring results?

Previous studies and surveys relating to formulation of a policy, strategy, and institutional framework for MSME development rarely reported data disaggregated by gender. Such information relates directly to the project's central goal: development of an MSME policy, strategy and institutional framework. Of particular importance is data relating to the type and scale of enterprises such as the size of the capital and asset base, the number of employees (regardless of whether they are registered or not), and the type of goods produced and services provided. If disaggregated by

sex, such data would comprise an information base valuable to policy makers and program planners.

Finally, BDFC should be encouraged to disaggregate borrower data by sex as it did initially. In particular, BDFC should be encouraged to monitor the degree of success achieved by the women comprising the proposed 1400 entrepreneurs who will gain access to finance for business expansion, and the 250 enterprises slated to receive training and technical support.

Rural Electrification and Network Expansion Project: Rural Electricians Training Program

Key Points

Development aims and impacts:

- Electrification has a direct, positive impact on poverty reduction, especially in rural areas where rates of access to electric power are lowest. By improving living standards and facilitating delivery of health and educational services, electrification enables increases in economic productivity that lead to expanded employment opportunities and higher incomes.
- Because of differences in the societal roles they play and the responsibilities they assume, requirements for, and uses of energy differ between men and women. Electrification thus impacts men and women differently. In this regard, women's views regarding energy use are often shaped by their reproductive roles.
- In cases in which remoteness of communities is extreme because of mountainous terrain such as in Bhutan, forms of energy in addition to electricity are sometimes required to reduce poverty and facilitate delivery of social services. A relatively high degree of social mobilization is required for electrification to be achieved in such communities. This is because firm commitments to upfront agreements for financing maintenance costs are fundamental to supplying electric power to such locales. Bhutanese women traditionally have had a great say in community matters and decisions. As a result, sustainability of energy infrastructure and service delivery hinges on their active participation in decision-making regarding such matters.

ADB processes and management tools:

- Providing training to both men and women in remote villages in the skills required for maintaining energy systems creates a sense of community ownership. This is an element missing in previous energy projects.
- Training women in skills such as installation and maintenance of solar energy systems and general electricians' skills addresses three objectives simultaneously. First, it imparts employable skills to rural residents. Second, it ensures availability of skills for maintaining energy infrastructure. Third, it assists in creating equal access to employment in the energy sector for both men and women.

- One of the loan covenants under the Rural Electrification and Network Expansion Project committed the executing agency to ensuring social and gender equity in project implementation. Specifically, the executing agency was to provide free electrification (house wiring) kits to the poorest of households in accordance with agreed criteria. The executing agency also committed itself to the goal of ensuring gender equality via equal pay for work of equal value.

Project Basic Facts

Loan approval number: 2009-BHU (SF)	JFPR number: 9093
Dates (actual)	Dates (actual)
Loan approval: 30 September 2003	Grant approval: 01 August 2007
Loan effectiveness: 31 March 2004	Grant effectiveness: 01 September 2007
Closing date: 19 December 2006	Grant closure: 01 September 2009
Executing agency: Bhutan Power Corporation (BPC)	Grant amount: \$1 million
Overall project cost: \$9.4 million	Executing agencies: Department of Energy (DOE), Ministry of Trade and Industry
Financing: ADB Special Funds	Implementing partners: Department of Human Resources of Ministry of Labour and Human Resources (DHR/MoLHR) Renewable Energy Division, Department of Energy, and Barefoot College, Rajasthan, India
Sector: Economic Growth	
Gender classification: Some Gender Benefits	
Assisted by JFPR: Rural Electricians Training Program	
Project number: 40001	

Project overview and ADB documents posted on ADB website at: www.adb.org/Documents/RRPs/BHU/rrp_bhu_34374.pdf

What are the project's main aims and approaches?

Approximately 70% of all Bhutanese reside in rural areas. About three-quarters of households in these locales are without electricity. As a result, Bhutan's rate of fuel wood consumption is one of the world's highest, with the majority of rural households facing increasing difficulty in securing fuel wood supplies. The Government of Bhutan wants to increase the country's electrification rate, particularly in rural areas, not simply for purposes of poverty reduction, but also to ensure sustainability of the country's long-term economic growth path. In particular, encouraging the use of electricity for both lighting and cooking would limit environmentally harmful emissions by reducing the use of kerosene for lighting and fuel wood for cooking. The following objectives of the Rural Electrification Network Expansion Project (RENE) supported these goals: (i) expanding delivery of electric power from existing national hydropower stations to additional rural residents in order to improve living standards and enable delivery of health and educational services, and (ii) increasing economic productivity, expanding employment opportunities, and raising incomes among Bhutan's rural poor.⁴

⁴ ADB. 2003. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Kingdom of Bhutan for a Rural Electrification and Network Expansion Project*. Manila.

The Rural Electrification and Network Expansion (RENE) Project was ADB's third loan-financed rural electrification project in Bhutan.⁵ The purpose of the project was to assist the government in providing electricity to 8,000 new rural consumers, as well as to hospitals, schools, and other public facilities. When completed, half the government's target of electrifying an additional 15,000 households by 2007 would be met. Achieving the project's goals would increase Bhutan's national electrification rate by eight percentage points from 35% in 2002 to approximately 43% in 2006. Since the incomes of approximately 43% of the households to be electrified fell below Bhutan's national poverty line of about \$187 per capita per year, the project assisted the Bhutan Power Corporation (BPC) in establishing criteria for providing electrification (house wiring) kits to 3,450 of the poorest households living in the area targeted for electrification under the project.

The same social and economic benefits achieved under past electrification projects in Bhutan were expected to be achieved under the current project. These included: (i) improving living standards through use of electricity for lighting and powering appliances; (ii) generating income-earning opportunities through establishment of small-scale cottage industries and through expansion of mini-food processing facilities, increasing efficiency in small-scale enterprises such as carpentry and tailoring, and facilitating establishment of small shops, bars, and restaurants; (iii) improving health through the use of electricity for lighting, heating, and cooking instead of kerosene lamps and fuel wood, and increased use of refrigeration for preserving food. The project benefits accruing to women were expected to be substantial.

Expansion of the country's rural electric power network poses physical challenges, given Bhutan's mountainous terrain and highly dispersed population. The cost of grid expansion and household connections in increasingly remote villages proved an uneconomic means of expanding electricity access to rural households. Instead, solar-powered electricity was the option preferred by the government. While solar energy systems and community-based hydropower facilities had previously been introduced on a pilot basis in Bhutan, in most cases the beneficiary communities lacked a sense of ownership over such facilities. In retrospect, this challenge could have been more efficiently addressed by increasing the degree of community involvement in both the installation and maintenance of such systems.

To ensure community ownership of facilities under the project, a Japan Fund for Poverty Reduction (JFPR) grant was added to the RENE project to fund a Rural Electricians Training Program. In addition to increasing the sense of community ownership of project facilities by ensuring local availability of repair and maintenance expertise, the program was to generate employment opportunities for local residents by training them as electricians.

The first of the program's two components created a pool of electricians that could respond to the repair and maintenance requirements of the electric power system provided under the project. In all, 395 semiliterate villagers from 79 gewogs (cluster of villages) in 12 dzongkhags (cluster of gewogs) became

⁵ The first loan of \$7.5 million was provided in September 1995 to electrify about 3,100 households. This project was completed in June 2000. The second loan of \$10.0 million was provided in October 1999 to electrify a further 6,010 new consumers. This latter project was completed in January 2006.

certified rural electricians. Under this component, a rural electricians database was also established, and information regarding employment opportunities created by project assistance was disseminated. This first component, which was implemented by the Department of Human Resources (DHR) of the Ministry of Labour and Human Resources (MOLHR), did not conduct training at Vocational Training Institutes. Instead, training was conducted at the *gewog* level in partnership with local government administrators.⁶ Graduates of the program qualified for credit schemes that offered concessional loans for setting up business as rural electricians, these schemes being sponsored by DHR and MOLHR's Entrepreneurship Promotion Center.

Under the second component, which was implemented by Barefoot College in Rajasthan, India, 46 semiliterate local women were trained in the installation and maintenance of photovoltaic (PV) solar energy systems. These "barefoot solar engineers" (BSEs) were tasked with installing and maintaining PV solar electricity systems in 345 households in 23 villages. This component both allowed some of Bhutan's most remote areas to benefit from electrification and accelerated access to electric power for local residents by at least 15 years, which was the length of time that would have otherwise been required for connection to the national grid. Consultations with villagers established the average price that households would be willing to pay for maintenance of the system, and assisted in the selection of the 46 BSE trainees from beneficiary communities.

What are the key gender equality issues that relate to the project's aims?

Access to energy is critical to economic development at all levels, including that of the individual. Further, the negative impacts of lack of access to modern energy fall disproportionately on women. This is so for a number of reasons. First, it makes fulfilling their reproductive roles more burdensome. Second, it negatively impacts their health. Third, it limits the income-earning opportunities available to them to a greater degree than men.

Time and physical-energy cost of using biomass as a primary energy source. Women tend to be ultimately responsible for the procurement, transport, and use of biomass (fuel wood, dung, agricultural wastes, charcoal), although some of this responsibility falls on children. Ultimately, all activities associated with using biomass as a primary energy source are both time and physical-energy intensive. Further, the more extensively biomass is used, the more rapidly its supply depletes, which means that increasingly greater distances must be traversed on foot to procure it. It is little wonder that rural women measure quantities of firewood in 'backloads', a graphic term indicating the laboriousness of the task of collecting it. In stark contrast to such laboriousness are the miniscule transport, time, and physical-energy costs of using modern forms of energy. In short, access to modern

⁶ This approach made it possible for local villagers to receive this training, in that the time and opportunity cost of receiving the same training at a Vocational Technical Institute (VTI) would have been prohibitive, given the amount of time-off from their work required and distance of VTI facilities from their homes.

energy frees up vast amounts of time and energy available to women and children that can be used to pursue income-earning opportunities or rest and relaxation.

Negative health impacts on women and children of using biomass as a primary energy source.⁷ Numerous studies have verified that use of biomass as a primary energy source leads to elevated levels of indoor air pollution known to be associated with poorer health and higher levels of morbidity than corresponding levels resulting from the use of modern forms of energy. These negative effects impact women and children to a much greater degree than men, in that they roughly parallel the proportion of each day spent indoors. This assertion was empirically verified by an indoor air pollution study conducted in 18 *dzongkhags*, which found the number of healthy working days lost due to respiratory infections and eye problems resulting from smoke emissions from firewood and kerosene-wick lamps to be higher among women than men.⁸ Virtually all sample households included in the study used firewood for cooking, suggesting a near complete dependence on this energy source. In contrast, the study found that modern energy sources do not emit pollutants that negatively impact human health.

Livelihood opportunities and productivity. Electricity and solar power expand the livelihood opportunities open to each individual in that electricity causes crude technologies to be replaced with more efficient tools, machinery, and appliances. Availability of electricity likewise increases productivity, thus increasing one's income-earning potential. In contrast, income-earning opportunities for Bhutanese women lacking access to electricity are limited to low-volume production of crude products.

One conclusion of the study referred to immediately above was that rural electrification is a 'weapon to fight against poverty'. The study found that women benefit from electrification in two ways: from reduction in the amount of time spent in performing domestic chores, and through improved health. However, the study found that special interventions may be necessary when providing access to electricity, thus, its benefits to the very poor.⁹

How does the project involve women?

The selection criteria used for identifying potential BSEs gave preference to "non-formal education learners" of middle-age who were willing to train for eight weeks at the district and/or village level. The training program, which was open to both men and women, was promoted by DHR through an information campaign that explained the potential employment opportunities that could result from the training.

The selection criteria for the program, which were formulated by the Department of Energy, favored women who had established residence in a village, and who were semi-literate, middle-aged, and from poor families. The 46 women selected agreed to six months of practical training at Barefoot College in India.

⁷ Ibid.

⁸ These findings were those of a poverty profile conducted under the Project Preparatory Technical Assistance for the *Rural Renewable Energy Project* (2009–2010).

⁹ ADB. 2010. *Social Economic Analysis, Report and Recommendation of the President to the Board of Directors on the Proposed Grant to the Kingdom of Bhutan on the Rural Renewable Energy Development Project*. Manila. (BHU-7138).

Once trained, the BSEs: (i) installed solar panels in each household; (ii) established rural electric workshops in their villages of residence; and, (iii) committed to maintaining the system active in their village of residence for a five-year period on a fee-for-service basis. The fee each received was estimated to be at the minimum, the equivalent of the expense that would have been incurred by each household if it had used kerosene or fuel wood as the primary source of energy instead of solar-generated electricity. The program's selection criteria proved difficult to apply, in that few middle-aged women were willing to leave their families for a six-month period. The 35 young women who were eventually trained became Bhutan's first BSEs, and were later referred to as Bhutan's "solar warriors".

How else is the project addressing gender disparities and benefiting women?

ADB's Energy for All Initiative (2007) acknowledges that access to energy, and the forms of energy used, have gender-differentiated impacts and that use of modern sources of energy can potentially affect gender imbalances and improve the position of women in poor communities.

The project allowed women to gain skills as solar energy technicians, and thus to expand both their range of employment alternatives and income-earning potential.

Traditional handicraft goods—which are produced almost exclusively by women—face extinction in many rural areas. Access to modern energy is expected to revitalize production of these goods through introduction of new technologies, raising of quality standards, and provision of incentives for producing these goods. DHR incorporated these goals into its campaign for recruiting BSEs by giving priority to villages in which traditional handicraft production accounted for a significant share of all productive activities. DOE likewise used this criterion in selecting villages for solar power connectivity. As a result, the villages selected for connection to solar electricity facilities were roughly the same villages from which trainee BSEs were drawn. It is noteworthy that in response to the project, productivity in traditional handicraft production improved to such an extent that some groups were able to earn up to \$610 a month from producing these goods.

What are the key achievements and remaining challenges?

The project achieved physical outputs far in excess of the targets set at appraisal. In short, it expanded electricity coverage to 9,206 new rural consumers, or 15% more beneficiaries than envisaged at appraisal. The cost per connection was \$1,447, 11% below the appraisal estimate. However, of the 3,450 electrification kits to be distributed to poor households, only 236 ended up being distributed. There were a number of reasons for this. First, beneficiaries showed a reluctance to be identified as being poor and therefore in need of charity. Second, the agreed eligibility criteria excluded more beneficiaries than envisaged at appraisal. Third, BPC lacked the capacity for implementing the agreed criteria, and had expected district authorities to perform this task.¹⁰

¹⁰ ADB. 2007. *Project Completion Report: Rural Electrification and Network Expansion Project in the Kingdom of Bhutan*. Manila.

In electrified villages in two districts, electricity had replaced kerosene and the burning of wood resin for both lighting and cooking. Indoor air quality improved, and, along with it, the health of women and children. This was especially true of girls, whose chores included cooking. Children studied better using electric light as opposed to kerosene lamps. Similarly, use of electric lighting in schools and health clinics facilitated health and education service delivery. That said, quantifying project benefits proved to be difficult due to lack of data, in part due to BPC's failure to implement the poverty impact survey formulated during appraisal.¹¹

Overall, the project was less successful than envisaged in attracting women to the BSE training program. Of the 461 villagers trained, only 19 (4%) were women, in spite of DHR's active recruitment of female participants. This outcome was mainly due to the fact that many women were unconvinced that potential clients would hire them following training, despite the fact that graduation entailed DHR certification as qualified electricians. This notwithstanding, the program proved beneficial to DHR in that it gained valuable experience in recruiting female participants into non-traditional trades.

In the end, 35 young women were trained as BSEs instead of the 46 envisaged. Upon their return, the new BSEs installed solar panels in 504 households in 46 villages, in 13 districts. As a result, Bhutan's first "solar warriors"—all women—were regarded by the villagers with pride.

The project was not without challenges. Setting up the database was the first step taken by DHR in monitoring the performance of graduate BSEs. Anecdotal evidence from DHR suggests that these graduates have not made full use of the skills they acquired in raising their incomes. As a result, the benefit reaped from their training can only be measured in terms of savings from using their skills within their own households.

While the "solar warriors" quickly performed the tasks expected of them, agreements with communities to pay specific maintenance costs proved difficult to enforce. Some households did not pay the BSEs for the repair services they rendered. As a result, the cost of these repairs fell on the BSEs, as they had agreed to provide the village with five years of maintenance services as a condition to being accepted for training. Many moved away from their home villages following marriage, or to pursue work opportunities elsewhere, leaving some villages without the expertise necessary for maintaining the solar energy systems that had been installed. Although this problem was later addressed in part by the Department of Energy, many households were left with unusable solar energy systems.

¹¹ The loan agreement required that BPC establish, not later than six months prior to the first electrification, a project performance monitoring system (PPMS) that included monitoring of social and poverty benefits. The consulting services provision in the loan amount included funds for engaging a local consultant who was to assist in establishing the PPMS and, in particular, the social and poverty benefits monitoring component. A possible design for a social and poverty benefits monitoring system, which envisaged using the PPTA phase 1 survey for baseline data, was included in the PPTA final report.

What project features contributed to the project's gender equality performance?

The gender-based socioeconomic analysis that formed part of the Project Preparatory Technical Assistance for this project was useful in formulating both the project itself and the supplementary JFPR-financed program that complemented it. Both emphasized active involvement of women as participant-beneficiaries of capacity-building assistance, even in roles considered non-traditional for women. Social and poverty-related indicators were included in performance targets and were sex-differentiated, these being integrated into the project's loan covenants. This feature was critical to achieving the project's gender equality targets.

Villages in which traditional handicrafts were at risk of extinction were given priority access to solar-powered electrification and training for rural electricians. As women traditionally produce these goods, the improvement in labor productivity resulting from the project contributed to its gender equality performance, the ultimate result being higher incomes for the women that produce these handicrafts.

What else could we look for when monitoring results?

Performance monitoring of DHR graduates should be disaggregated by sex, and should include indicators of the degree to which graduates made use of the skills they acquired, as well as the degree to which these skills resulted in higher incomes than otherwise would have been the case. Project data suggest that "solar warriors" certified by DHR as solar technicians should be mobilized in the implementation of future projects that include solar-powered electrification components. The data further suggest that training "solar warriors" in entrepreneurial skills benefits graduates in setting up their own micro-enterprises that make use of the skills they have acquired.

Moreover, it would be beneficial for future graduates if the manner in which project beneficiaries view females as electricians or solar technicians could be documented, as well as the willingness of rural residents to pay for the services they provide. The same holds true of the manner in which males working in the same trades view female counterpart workers. Such information would be valuable in determining how women could further be integrated into these trades, as well as other trades considered non-traditional for women.

It would also be beneficial to assess the various approaches to community mobilization with regard to how each might strengthen a sense of community ownership of electricity generation and distribution systems.

Moreover, any project performance monitoring system for assessing the relative success of electricity generation and distribution projects should disaggregate social and poverty-related indicators by gender.

Finally, a review of how project design could be better used to increase the efficiency with which assistance to the poorest beneficiaries is made available would be beneficial, particularly in the case of electrification projects targeting remote communities. In the case of the RENE project, this would mean assessing the degree to which the project showed flexibility in allocating assistance,

particularly in cases in which beneficiary eligibility criteria are not aligned with beneficiary energy requirements. Optimizing the delivery of such assistance may require the expertise of external agencies with intensive knowledge of social mobilization, particularly in cases in which a particular project executing agency lacks such expertise.

Basic Skills Development Project and Rural Skills Development Project

Key Points

Development aims and impacts:

- Rising unemployment, particularly in the urban areas and among educated youth, remains a key concern of the Government of Bhutan. Part of the reason for this phenomenon is a mismatch between labor supply and demand, which the project aimed to address.
- Technical and vocational education training (TVET) is increasingly required to meet the labor requirements of Bhutan's market-oriented private sector. In this regard, it is important to allow women to become competitive in the labor market, and to earn income along with men.
- Mainly because of demand by industrial employers, Bhutanese males dominate TVET enrolment, especially in construction and engineering. However, this outcome is also due to the fact that females prefer not to engage in physically challenging blue-collar jobs. Thus, after graduation, many women decide not to work in the sectors in which they have received training.
- Discrimination against women in TVET programs occurs both in access to, and benefits from, such programs. This discrimination is often subtle, as most employers in traditionally male-dominated trades prefer to hire male rather than female graduates.
- While it is important for TVET programs to meet market demand, it is also important that such programs take into account gender differences in interest and readiness to participate in such programs. Balancing these two goals requires expanding the choice of trades offered.

ADB processes and management tools:

- Rural skills training and an equitable TVET promotion policy were integrated into all project components, as well as all covenants with the executing agency.
- Moving toward more gender-equitable participation in skills training in rural areas requires a gender-equitable access policy. Examples of such a policy include separate toilets for men and women in *gewog* (village cluster) training centers and Vocational Training Institutes (VTIs), more flexible training delivery modes, more convenient training locations for women and girls, training courses more attractive to female students, and gender sensitization of training staff.

Project Basic Facts

Loan number: 1830-BHU (SF)	Sector: Human Development
Dates (actual):	Gender classification: Effective Gender
Loan approval: 21 June 2001	Mainstreaming
Loan effectiveness : 16 November 2001	Assisted by: Rural Skills Development
Closing date: 31 March 2008	Project (RSDP) JFPR # 9103-BHU
Executing agency: Department of	Total grant: \$1.99 million
Human Resources, Ministry of Labour	Government: \$0.3 million
and Human Resources (MoLHR)	Community (in-kind): \$0.035 million
(originally the National Technical	JICA: \$0.6 million (estimate)
Training Authority or NTTA)	Sector: Education
Overall project cost: \$12.5 million	Subsector: Technical education,
Financing:	vocational training, and skills
Asian Development Fund:	development
\$7.0 million	
GTZ: \$2.5 million equivalent	
Government: \$3.0 million	

Project overview and ADB documents posted on ADB website at: www.adb.org/Documents/PCRs/BHU/31317-01-bhu-pcr.pdf and www.adb.org/Documents/GAR/BHU/40172-BHU-GAR.pdf

What are the project's main aims and approaches?

In the early 1960s, Bhutan began shifting from an agrarian society to a modern, market-based economy. This shift was led by manufacturing, electricity generation, and construction. To prevent labor shortages in sectors in which demand for skilled, semi-skilled, and unskilled workers was increasing rapidly, the government permitted significant inflows of migrant labor from neighboring countries. Because of increasing urban unemployment among educated young Bhutanese, development of employable skills among Bhutanese nationals is a priority for both national development and social stability. In sum, a sustainable growth trajectory for Bhutan will require that domestic human resources adapt to the demands of the emerging modern market-based economy. An important constraint in this regard is that the country lacks relevant vocational training systems, especially those oriented to the requirements of the private sector.

The objective of the Basic Skills Development Project (BSDP) was to improve the quality and relevance of the TVET system to ensure that training is provided in the basic skills required for employment. Further, this training was to target new graduates, unemployed youths, domestic laborers, and residents of rural areas, women and the poor in particular. Due to upgrading of the country's infrastructure, skills training and facilities could be offered in rural communities. This made it possible to improve the skills of those who previously lacked access to such training, women in particular.

To achieve this objective, the aims of the BSDP were (i) to strengthen the institutional capacity for policy making, planning, and coordination within the TVET system, as well as in delivering basic skills training relevant to market demand and commensurate with the capacity of beneficiaries; (ii) to increase access to basic

skills training by expanding the TVET system to include community-based programs, rehabilitating existing facilities, and establishing new ones; (iii) to improve the quality of basic skills training by strengthening links with the private sector; and (iv) to promote the use of basic skills by providing employment placement services.¹²

Major project beneficiaries included recent school graduates from general education unable to obtain employment as they lacked skills demanded by the private sector; workers who had to upgrade skills either to retain their jobs or increase their incomes; and women and villagers in rural areas seeking training programs for raising their income and improving their living conditions. Further, basic skills training for villagers was deemed necessary for ensuring they would be able to maintain village property, community schools, basic health centers, roads, and water supply facilities. It was in turn deemed vital for reinforcing the recent expansion of infrastructure by ensuring that villagers possessed skills necessary for maintaining such investments.

In response to demand for skills training by the rural poor as well as the government's goal of increasing rural incomes by upgrading vocational skills, a Rural Skills Development Project (RSDP) was proposed for Japan Fund for Poverty Reduction (JFPR) financing. The purpose of this project was to train villagers in skills necessary for maintaining village infrastructure, and well as for increasing rural incomes. A new training program for rural areas, the Gewog Skills Development Program (GSDP), focused on basic construction skills for house maintenance and small-scale construction. Specifically, this program included training in carpentry, electrical house wiring, plumbing and masonry skills. The GSDP was implemented on a pilot basis in 25 *gewogs* in 3 *dzongkhags* (cluster of *gewogs*). Beneficiaries were to include 10% of households, with 375 trainees coming from poor households. While these overall quotas presumably included both men and women, no gender-specific quotas were stated for the project.

What are the key gender equality issues that relate to the project's aims?

- Bhutanese women are more likely to continue to work on family farms as unpaid workers than are Bhutanese men, who tend to gravitate toward cash income employment. Given Bhutan's increasingly monetized economy, women must acquire the appropriate skills for exploiting emerging employment opportunities or face exclusion from rising income levels.
- Young women from poor communities are especially disadvantaged in this regard, due to community or family beliefs that undermine their ability to exploit expanding income opportunities. The training available to them is often confined to what is perceived as "feminine" roles, which do not necessarily result in profitable work. Even when enrolled in training courses in male-dominated areas, women face de-motivating learning environments that fail to take account of their own learning requirements.¹³

¹² ADB. 2010. *Project Completion Report on the Basic Skills Development Project in Bhutan*. Manila.

¹³ www.unevoc.unesco.org/tvetipedia.0.html?&tx_drwiki_pi1%5Bkeyword%5D=Gender+issues+and+TVET

- The TVET structure is male-oriented in that the courses offered tend to be compatible with male preferences, such as courses that teach skills relating to construction or engineering.
- Gender balance in TVET enrolment and private-sector employment must be improved if access to employment and cash income opportunities are to be made available to women. Achieving these goals will require a more equitable gender balance in TVET enrolment and private-sector employment.¹⁴
- School graduates, both male and female, show a preference for high-pay, white-collar public-sector employment. Much of this phenomenon is due to the fact that for decades, the public sector was Bhutan's largest employer, with jobs in this sector being viewed as more honorable and coveted than other employment. However, due to Bhutan's ongoing rapid modernization, the country's business and service sectors are likely to increasingly provide avenues for future advancement. A new way of thinking about employment is required, particularly for female graduates, if Bhutan's human resources are to be employed as efficiently as possible in fuelling further economic growth.

How does the project involve women?

Both the BSDP and RSDP promoted gender equitable access to opportunities arising from project investments. Both projects involved women in the ways described below.

Gender equity in TVET program participation. All project components included an equitable access promotion policy. This action aimed at raising the low female-male TVET enrolment ratio and reducing female drop-out rates. One of the BSDP project assurances stated that the government would "take all appropriate and necessary measures to ensure an overall female enrolment ratio of at least 30% in its skills training programs, without resorting to a quota." Under the RSDP, women were recruited and trained as trainers in basic modern construction skills.

Beneficiaries of the improved TVET system. Those specifically expected to benefit from TVET improvement included women, along with young workers and members of the existing workforce. The living conditions of rural women lacking access to skills training were in particular expected to improve as a result of the project. Project benefits were to include increased opportunity for upgrading basic skills, and increasing beneficiary employability in skilled and semiskilled positions.

An indirect, and desired project outcome as a result of the gender equity provision in the TVET policy framework was that of improved opportunities for women to become TVET trainers or teachers .

Key actors in project management and implementation. During most of the project's implementation period, the RSDP was led by a female project manager, and female experts were used in the gender sensitization of VTI trainers.

¹⁴ ADB. 2001. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Kingdom of Bhutan for a Basic Skills Development Project*. Manila.

How else does the project address gender disparities and benefit women?

The BSDP incorporated specific measures for ensuring gender equity in access to basic skills development. It did this by:

- Developing, implementing, and monitoring the project's equitable access promotion policy as a means of making the current male-oriented TVET structure more gender-neutral.
- Expanding the existing Village Skills Development Program (VSDP) as a means of improving access to TVET by rural residents, new school graduates, unemployed youth, domestic laborers, and women.
- Setting up regional hubs and mobile training teams that reached local communities in rural areas and opening up opportunities to rural women, in particular through the Community Access Unit (CAU). Prior to the project, training institutes were located near industrial facilities, but inconvenient for female students and inaccessible to rural residents, women in particular.
- Supporting the apprenticeship training program which attracts female enrollees.
- Including specific measures for facilitating female participation in each pilot gewog in the Project Management Unit's terms of reference. The goal of these measures was that of achieving an equal proportion of males and females in students admitted to skills training programs in rural areas.
- Formulating training curricula, methods, and techniques to make them more friendly to women.

What are the project's key achievements and remaining challenges?

While the project achieved impressive results in gender equality in TVET training, particularly in terms of access to apprenticeship programs and rural skills training, there remain significant challenges that must be addressed if full gender equity is to be attained. Some key project results are as follows:

- National vocational qualification standards, equitable access for men and women, and partnership with the private sector have all been incorporated into the TVET policy framework.
- Female students account for 23% of TVET enrolment on average, and for 26% of all VSDP graduates. While this overall ratio is somewhat short of the 30% target, female enrolment in one district is as high as 45%. This suggests that geographic differences should be taken into account in designing TVET programs.
- A study of VTI graduates conducted in 2009 indicated that 90% of respondents were employed at the time of the study, and were earning monthly incomes ranging from Nu2,000 to Nu15,000, with the average level being Nu7,884.23. Considering that most VTI graduates are children

of farmers for whom gross domestic product per capita is approximately Nu6,800 (or Nu566 per month), this current level of income represents a significant increase.¹⁵

- In 2009–2010, women accounted for 60% of all enrollees in on-the-job training in construction skills provided through MoLHR’s Construction Service Center.

The remaining challenges are as follows:

- In the district where women accounted for 45% of all TVET enrollees, female graduates accounted for only 2% of total income generated. This outcome is due to the fact that the demand for the skills in which women are trained (plumbing and house wiring) is weak in this district. These skills are thus remunerated poorly when compared with carpentry, a trade traditionally dominated by men.
- Female TVET students still tend to be tracked into courses traditionally dominated by females according to TVET enrolment data. One reason for this is that employers show a preference for hiring male rather than female graduates in trades that have traditionally been dominated by males, and for which income-earning potential is highest.
- The failure of TVET graduate employment- and income-measuring systems to disaggregate data by sex makes it difficult to assess the gender-equity impact of improvements in Bhutan’s TVET system. Such disaggregation is necessary if gender disparities are to be addressed by means of appropriate policy.

What project features contributed to the project’s gender equality performance?

The project’s built-in gender-neutral promotion policy enabled access by specific sectors to government-provided skills training programs. Examples of this policy are as follows:

- Under both the BSDP and RSDP, women were required to have access to skills training under both the VSDP and the GSDP.
- The GSDP included a skills development program tailored to the agrarian off-season that focused on modern work skills, basic construction skills in particular.
- The GSDP incorporated a mechanism for expanding the training provided via a training-of-trainers feature under which community members were recruited to offer the training they received to other rural residents.
- Access by females to training was improved by offering service-sector skills courses attractive to young women.
- Building training facilities in rural areas benefited those lacking access to skills training. This is particularly true of rural female residents.

¹⁵ ADB. 2010. *Project Completion Report on the Basic Skills Development Project in Bhutan*. Manila. pp. 12–13.

- Sustainability of project benefits beyond project implementation was assured by incorporating core project activities into the responsibilities of government administrators.
- Both project loan and grant documents included government assurances that the goal of gender equity in TVET programs and basic skills training in rural areas would continue to be pursued after project implementation ended.

What else could we look for when monitoring results?

The outcomes of both the BDSP and the RDSP were to be monitored at both the institutional (MoLHR) level and the client group level. Monitoring results at the client group level was made difficult by the fact that employment and income tracking data for TVET graduates was not disaggregated by sex, except in the case of the apprenticeship training program. Such disaggregation should be incorporated into systems for tracking the success of graduates in employment, income, health, and quality of life. For female graduates in particular, the savings from applying construction skills (e.g., house wiring) within the household should likewise be incorporated into tracking systems.

An additional outcome of the BDSP was that of assigning specific roles to specific MoLHR units, which allowed monitoring of individual MoLHR units with regard to how well each unit performed its assigned roles (e.g., implementation of the equitable promotion policy, including gender equitable access to TVET programs). Each of the italicized questions below points to possible areas that respective MoHLR units could monitor.

The Industry Liaison and Publicity Unit (ILPU) is responsible for direct linkage between TVET and private enterprise, as well as for publicity. *How well do current training course publicity campaigns reach women?*

The Employment Service Centers provide career guidance and job placement services for private-sector employment. The Construction Service Center provides on-the-job training in construction to VTI graduates unable to find employment immediately. *Did males or females dominate the group that used these services?*

The Labor Market Information Division is responsible for coordinating and managing the labor market information system (LMIS). *Is the LMIS and the data generated by this division disaggregated by sex?*

The Department of Standards (DOS) is responsible for setting up occupational skill standards, conducting skills testing, and for certification. *Do the skill standards developed thus far include occupations dominated by females?*

The Training and Professional Services Division's mandate is that of developing, implementing, and updating training packages including curricula, training materials, and training of trainers. *Do the curricula generated by this division incorporate gender equity concerns? Are the division's training materials gender sensitive? Does training of trainers include gender sensitization? Are data concerning the beneficiaries of the 30 person-months of international fellowships made available under the project disaggregated by sex?*

Road Improvement Project: Improving the Well-Being of Road Workers

Key Points

Development aims and impacts:

- Improving roads produces a broad range of direct economic and social benefits to beneficiary communities as well as to the disadvantaged, women and, in particular, the poor.
- Despite the stereotype that road improvement work is solely the domain of men, in Bhutan both men and women perform this work, though a different set of tasks is typically assigned to each gender. Basic equipment is rarely provided in the case of tasks performed by women, and their pay rate is generally lower than that of men. The aim of the project was equal access to employment opportunity in road improvement work for both men and women, and gender-neutral rates of remuneration.
- Road improvement is hazardous work. It endangers workers' physical safety, health, and overall well-being. For example, the social stability of road workers is often impacted by long periods of separation from family. Ensuring the well-being of workers and their families is critical to the success of infrastructure initiatives such as road improvement projects. This can take many forms, such as providing shelter near work sites with water and sanitation facilities, basic health care services, and schools for the children of construction workers.

ADB processes and management tools:

- Specifying equal access to employment in road improvement as an explicit project objective increases project benefits accruing women.
- Explicit targets regarding women's access to capacity-building inputs, such as training in the provision of basic health services and promotion of sanitation in rural communities contributes to long-term project benefits accruing to rural women, their families, and project beneficiary communities overall.

Project Basic Facts

Loan number: 1763-BHU (SF)	Category: Pro-poor growth/poverty reduction
Dates (actual):	Gender classification: Some Gender Benefits
Loan approval: 03 October 2000	Assisted by JFPR: Improving the Well-being of Road Workers
Loan effectiveness: 23 November 2000	Project number: BHU-37031
Closing date: 08 August 2006	JFPR number: 9069
Executing Agency: Department of Roads, Ministry of Works and Human Settlement (DoR/MWHS)	Dates (actual)
Overall project cost: \$14.26 million	Grant approval: 09 August 2005
Financing:	Grant effectiveness: 30 September 2005
ADB Special Funds: \$10.43 million	Grant closing: 31 December 2009
Government of Bhutan: \$3.83 million	Amount of Grant: \$0.50 million
Sector: Infrastructure	

Project overview and ADB documents are posted on the ADB website at: www.adb.org/Documents/PCRs/BHU/32288-BHU-PCR.pdf and www.adb.org/Documents/JFPRs/BHU/jfpr-bhu-37031.pdf

What are the project's main aims and approaches?

The goal of the Road Improvement Project (RIP) was to contribute to poverty reduction in Bhutan by providing employment opportunities to the poorest segment of the country's population, thereby improving their quality of life. The project's objectives, which are consistent with ADB's principle of pro-poor economic growth, were as follows:

- (i) improve the East-West (EW) Highway (the only means of transport between two important cities) through resurfacing, construction of line drainage, and slope protection;
- (ii) promote private sector participation and assist in the development of domestic contracting and consulting activities by introducing a pilot contractor and equipment leasing scheme;
- (iii) reduce poverty by increasing employment opportunities for the poor, and improve access to health, education, and other social services; and
- (iv) strengthen governance by providing institutional support to the Department of Roads (DoR).

The project's components were as follows: (i) resurfacing of about 380 km of the EW Highway through mechanized but environmentally sound methods, and installation of related drainage; (ii) slope stabilization along the highway; (iii) introducing a pilot contractor and equipment leasing scheme for domestic contractors; and (iv) providing consulting services for the design and supervision of civil works, and for institutional support.

Since unskilled labor is a major project input in rural locales, local contractors were required to hire local workers. Female residents form the majority in some of these communities, as male residents often migrate to town centers in search of employment. By requiring local contractors to hire both men and women, the

project expanded employment opportunities for women. Other project benefits accruing to rural residents included:

- Increased business opportunities for entrepreneurs and small traders (mainly women) who set up small-scale enterprises along the roadway;
- Increased access to markets of substantial size, as well as export opportunities for agricultural producers, who are often women;
- Increased passenger traffic along the improved roadways, including more frequent visits with relatives.

A program complementary to the Road Improvement Project: Improving the Well-Being of Road Workers, was financed through the Japan Fund for Poverty Reduction (JFPR). The program assisted 4,083 road workers and their families in two ways: (i) infrastructure and equipment support, and (ii) capacity-building in health and sanitation, and livelihood development. The infrastructure and equipment provided under the program were as follows: housing, water, and sanitation facilities; 30 solar power units for 60 dwellings used by road workers (one unit for every two dwellings), essential equipment for basic health services, and school shelters or boarding houses for the children of road workers who attended primary school. Capacity development support consisted of health awareness campaigns; training of road workers and their families in basic health and sanitation; and training of 60 road workers as road health workers, the trainees mainly being female school-leavers or women who had completed basic education. These two types of assistance to road workers and their families improved:

- awareness of health issues and access to first-aid,
- labor productivity,
- incomes, as a result of establishment of additional forms of livelihood such as weaving, knitting, and carpentry, and
- school attendance and performance of the children of road workers, at least 50% of whom were female.

What are the key gender equality issues that relate to the project's aims?

Despite the country's overall gender equality ethos, Bhutanese women are disadvantaged compared to men in access to basic services. The gender equality issues relevant to the project aims were as follows:

Unequal access to jobs viewed as non-traditional for women. In most countries, employment relating to construction of infrastructure is viewed solely as the domain of men. In Bhutan, however, road workers are drawn from both genders, with women performing tasks as physically hazardous as those performed by men. The project recognized the role of women in road construction and ensured that private contractors provided them with equal access to employment as road workers.

Extreme poverty among female heads of rural households. The poorest members of Bhutanese society are women who head rural households due to divorce or widowhood. While the survival of their households depends on their

income-earning potential, they face limited employment opportunities. The road improvement project provided employment opportunities to any person in the beneficiary communities regardless of gender, skill level, or social circumstance. Extremely poor rural women, including female heads of rural households were able to directly benefit from such opportunities.

Limited access to reproductive health services. On average, at least three Bhutanese women die each month due to pregnancy-related complications.¹⁶ One reason for this is that most deliveries occur at home under unhygienic conditions without the assistance of a trained midwife. Access to health care can be difficult in Bhutan, since the country's basic health units are located quite a distance from the isolated areas in which many rural residents live. It is thus nearly impossible for these residents to reach health centers without some form of transport in emergency situations. This is a need addressed by the project.

Low educational levels among rural women. Females are less likely to have completed formal education than males. Further, 60% of Bhutan's rural population currently completes no formal education whatsoever, a rate twice that of the urban population's 32%.¹⁷ A major reason for this difference is the greater distance between rural dwellings and schools compared to urban areas. Access to schools is a major constraint to receiving education in rural areas, especially for females. By facilitating access to schools, the Road Improvement Project raised the potential rate of enrolment among rural residents, females in particular. It also facilitated commuting between towns and rural village schools, which made it easier for teachers, of which the majority are female, to provide improved education to rural children. Further, by providing dormitories near primary schools the project encouraged road workers to send their children to school.

Limited access to other basic services. Lack of proper water supply in rural areas forces women to fetch water over long distances, in addition to the considerable amount of time devoted to collecting fuel wood. This onerous workload was easily reduced through provision of solar power and drinking water in camp dwellings provided under the project.

How does the project involve women?

By requiring local contractors to hire both men and women to fulfill unskilled labor requirements, the Road Improvement Project directly improved employment opportunities for women in road construction, slope protection, and maintenance works. Further the lives of female project beneficiaries were improved as follows:

- Female road workers who were either school-leavers or who had received basic education were trained as road health workers.
- Female road health workers led health awareness campaigns targeting 4,083 road workers. These campaigns included information regarding basic hygiene and health, HIV/AIDS awareness, maternal and infant health and nutrition, and occupational health safety.

¹⁶ southasia.oneworld.net/todayshadlines/maternal-mortality-rate-appalling-in-bhutan

¹⁷ Government of India, National Statistics Bureau. 2007. *Bhutan Living Standard Survey*. p. 28.

- Both men and women were employed in the construction of facilities that improved the living conditions of road workers. These facilities included:
 - (i) Solar power connections, water supply, and latrines in road workers' dwellings; and
 - (ii) dormitories for the school-aged children of road workers.

How else is the project addressing gender disparities and benefiting women?

Under project auspices, an assessment of the well-being of both male and female road workers was conducted in various parts of the country. Because it likewise included a gender assessment, this survey provided a sound base for planning programs for improving the well-being of road workers in general, and women and children in particular. The baseline information generated by the survey identified constraints to, and opportunities for, improving the living conditions of women targeted by the project. It likewise documented the project's gender ratio and working conditions, and identified the social and welfare facilities to be made available under the project. An additional benefit of the survey was that it improved the effectiveness of the joint initiative of the government and the World Food Program, which collaborated in subsidizing food rations to road workers under the project, and created a counterpart fund to be used for various welfare initiatives.

Gender-friendly, participatory consultations. The design of the project greatly benefited from consultations with potential beneficiaries, both male and female, that took place during project preparation. These consultations particularly shaped the project's gender equity focus.

What are the project's key achievements and remaining challenges?

The project's economic and social benefits were assessed by comparing the results of the pre-project survey with those from a socioeconomic survey conducted following project completion.¹⁸ With regard to the goal of poverty reduction, the post-project survey found that the prices of various crops and the number of tourist arrivals had increased, and that incomes had risen. Unfortunately, the data gathered were not disaggregated by sex, so no conclusions regarding the project's impact on gender equity could be drawn. That said, the data collected suggested positive results in that there were significant increases in the prices of crops produced and sold, mainly by women. For example, the price of potatoes rose by 67% and that of cheese by 92%, while the price of vegetables enjoyed a much larger increase, rising by 231%. Particularly in comparison with other sources of income, these data suggest improvement in the incomes of women participating in these activities, since the major producers and sellers of vegetables in Bhutan are rural women. It is highly probable that the Road Improvement Project was directly responsible for a significant rise in the overall level of income of project beneficiaries.

¹⁸ Conducted in 2002 and in 2005, the original project end-date. Louis Berger International, Inc. in association with Gyeltshen Consultancy. 2005. *Social Assessment and Project Performance Benefit Evaluation*. Thimpu.

The increase in tourist arrivals resulting from road improvement under the project spawned numerous local businesses that catered to this lucrative market. Some, particularly businesses that sold prepared food, woven products, and other souvenir items, were owned by women.

The project likewise benefited women by improving their access to non-traditional employment, and therefore better pay. The construction and maintenance works generated by the project created employment opportunities for rural women in a sector traditionally dominated by men. Requiring local contractors to hire both men and women to fill the (mainly) unskilled labor positions resulted in a higher rate of remuneration for female road workers than prior to the project, since the average wage paid by private contractors was Nu2,700 per month as opposed to the Department of Road's average wage of Nu 1,500 per month.

The project likewise achieved the overall improvements detailed below.

Improved health and sanitation. The health awareness campaigns implemented under the project positively impacted 4,083 road workers, including women and children. Raising the level of awareness of basic health, hygiene and sanitation issues led to more hygienic conditions in their dwellings and nearby surroundings, and contributed to raising the overall level of health among road workers. The 44 latrines constructed in road workers' camps, and provision of piped water supply in eight camps directly reduced the incidence of water-borne disease. Similarly, pregnant women went to regular pre-birth check-ups at local health centers and immunized their newborn infants. In addition, the rate of use of contraception by road workers increased.

Additional time available for livelihood activities and recreation. The water supply facilities and electric power connections provided in 92 road worker dwellings freed up time for women to pursue secondary income-earning activities at night, or to engage in recreational activities. Schoolchildren likewise benefited from the provision of solar electric power.

Increased school attendance and improved academic performance of the children of road workers. Three facilities provided under the project directly led to these improvements: (i) dormitories built near schools that provided temporary shelter for children during the school year, (ii) accessible health services provided by road health workers (mainly women) who dispensed medicines for minor ailments, and (iii) solar-powered electrical connections, which improved lighting in homes, schools and dormitories, and enabled study and homework to be done during hours of darkness. These facilities contributed to a school attendance rate of nearly 100%, and improved the overall academic performance of the children of road workers.

A major challenge in assessing project benefits was that of quantifying the degree of poverty reduction it achieved. One of the project's intended outcomes was that "Poverty [was to be] reduced through the provision of employment opportunities for the poor and better access to health, education, and other social services". Measuring the degree of poverty reduction achieved by any project is difficult. In the case of the Road Improvement Project, under the pre-project situation, many road workers failed to send their children to school due to the cost of providing food for children staying in dormitories. Funding these costs enabled a near 100%

school attendance rate, thus reducing poverty among beneficiary families in both the short and long term: the short-term benefits comprising provision of food to school children, and the long-term: benefits being reduction in poverty via increased lifetime earning potential due to increased educational levels.

What project features contributed to its gender equity performance?

Equal access to non-traditional occupations and income-earning activities. As a result of the project, women are now viewed as being suitable for employment by private contractors engaged in road construction and maintenance activities. They now enjoy equal access to employment in this field. Further, men and women alike provided the labor used by DoR in constructing and repairing road worker dwellings, in installing and repairing solar power units in these dwellings, and in constructing and operating dormitories for the children of road workers.

Specifying women as direct project beneficiaries along with men. At the outset, the design of the project recognized the low probability that women would enjoy equal employment opportunity with men in a traditionally male-dominated field. The project addressed the issue of gender equity in employment opportunity directly and specifically, which in the end greatly increased the amount, scope, and extent of project benefits.

Recognizing women and men as equal actors in achieving sustainable development. While their roles may differ, men and women contributed equally to road improvement and maintenance under the project. By recognizing their equal contribution, albeit through different roles, the project encouraged equal participation of women and men in road maintenance, which is essential to sustaining the benefits of an improved road system. By viewing road workers' well-being in the broad context of family welfare through the provision of basic services (shelter, water, electricity, health and children's education), both male and female road workers felt more secure, and thus better able to focus on the tasks of road improvement and maintenance.

What else could we look for when monitoring results?

Additional quantifiable indicators of long-term project benefits accruing to women are as follows:

Continued employment of women by private contractors. DoR must continue to encourage private contractors to employ local labor—men and women—instead of importing labor from India or Nepal. This could be achieved by providing appropriate incentives that the government formulates in consultation with private contractors and the communities concerned.

Gender impact. Measuring any project's gender equity impact requires all data gathered to be disaggregated by sex. Of particular importance in this regard is data relating to pre- and post-project income levels. For example, assessment of the gender equity impact of the Road Improvement Project would have benefited from disaggregating the data regarding crop producers by sex. This would have allowed more concrete conclusions to be drawn as to the project's impact on raising the incomes of project beneficiary women as a result of crop price increases.

Measuring the project's long-term impact on income levels would likewise have benefited from the following types of data being disaggregated by sex: (i) increases in school enrolment, attendance, and academic performance; (ii) time-use data, as this would allow measurement of the benefits arising from improved roads for purposes of recreation, skills training, and similar self-improvement activities; and (iii) improvement in the health of road workers and their children.

Commitment of project implementers. Including the following features in projects similar to the Road Improvement Project would expand project benefits even further. The Ministry of Education could provide human resources such as dormitory wardens. Dormitories could provide food to schoolchildren. Female road health workers trained under the project could be employed by the Ministry of Health as outreach workers. The DoR could maintain a 46% ratio of female road workers to total road workers on its payroll, or alternatively hire more female road workers and pay them at the same rate as that required of private contractors. The benefits of many projects fail to be sustained because of lack of resources for operation and maintenance of the facilities constructed. This was true of the collaborative program undertaken by the government and the World Food Programme that subsidized food rations for road workers. When these rations ended, road workers' incomes (based on DoR rates) were insufficient to cover the cost of food for both the road workers and their families. The same outcome could occur given no improvement in the pay scale for road workers, or if they were expected to cover the full cost of services provided under the project.

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