Promoting Primary Health Care in Central America
Project XB31222

Nicaragua

Final Report

Centre for Nursing Studies
St. John’s, Newfoundland and Labrador

March 2009
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acronyms</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Executive Summary</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Background and Purpose</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Summary of Project Results</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Review of Project</td>
<td>11</td>
</tr>
<tr>
<td>1.0</td>
<td>LFA (Logical Framework Analysis)</td>
<td>11</td>
</tr>
<tr>
<td>2.0</td>
<td>Beneficiaries</td>
<td>11</td>
</tr>
<tr>
<td>2.1</td>
<td>Graduates</td>
<td>14</td>
</tr>
<tr>
<td>2.2</td>
<td>Communities</td>
<td>15</td>
</tr>
<tr>
<td>2.3</td>
<td>Population</td>
<td>16</td>
</tr>
<tr>
<td>3.0</td>
<td>Sustainability</td>
<td>17</td>
</tr>
<tr>
<td>3.1</td>
<td>Curriculum</td>
<td>17</td>
</tr>
<tr>
<td>3.2</td>
<td>Teaching Model</td>
<td>18</td>
</tr>
<tr>
<td>3.3</td>
<td>Institutional Capacity</td>
<td>18</td>
</tr>
<tr>
<td>3.4</td>
<td>Technical capacity</td>
<td>19</td>
</tr>
<tr>
<td>3.5</td>
<td>ICT (Information and Communication Technology)</td>
<td>20</td>
</tr>
<tr>
<td>3.6</td>
<td>Physical assets</td>
<td>20</td>
</tr>
<tr>
<td>3.7</td>
<td>Cross Subsidization</td>
<td>20</td>
</tr>
<tr>
<td>3.8</td>
<td>Ministerial Commitment</td>
<td>21</td>
</tr>
<tr>
<td>3.9</td>
<td>Institutional Linkages</td>
<td>22</td>
</tr>
<tr>
<td>4.0</td>
<td>Mid-term Evaluation</td>
<td>23</td>
</tr>
<tr>
<td>5.0</td>
<td>Millennium Development Goals (MDGs)</td>
<td>23</td>
</tr>
<tr>
<td>6.0</td>
<td>Gender</td>
<td>27</td>
</tr>
<tr>
<td>7.0</td>
<td>Project Rationale and Justification</td>
<td>28</td>
</tr>
<tr>
<td>8.0</td>
<td>Cost of Distance Education</td>
<td>31</td>
</tr>
<tr>
<td>9.0</td>
<td>Other significant information</td>
<td>31</td>
</tr>
<tr>
<td>9.1</td>
<td>Adaptation to Technology</td>
<td>31</td>
</tr>
<tr>
<td>9.2</td>
<td>Lack of Attrition</td>
<td>31</td>
</tr>
<tr>
<td>9.3</td>
<td>Opening of Health Centres</td>
<td>32</td>
</tr>
<tr>
<td>10.0</td>
<td>Financial Management</td>
<td>32</td>
</tr>
<tr>
<td>Lessons Learned</td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>11.0</td>
<td>Project Activities - Logistical Considerations - in the field</td>
<td>32</td>
</tr>
<tr>
<td>11.1</td>
<td>Local Government Support</td>
<td>32</td>
</tr>
<tr>
<td>11.2</td>
<td>Power Outages and Poor Weather Conditions</td>
<td>33</td>
</tr>
<tr>
<td>11.3</td>
<td>Varying Levels of Education and Language Diversity</td>
<td>33</td>
</tr>
<tr>
<td>11.4</td>
<td>Clinical Considerations</td>
<td>33</td>
</tr>
<tr>
<td>11.5</td>
<td>Financial Difficulties (for Students)</td>
<td>34</td>
</tr>
<tr>
<td>12.0</td>
<td>Political considerations</td>
<td>34</td>
</tr>
<tr>
<td>12.1</td>
<td>Similar Vision</td>
<td>34</td>
</tr>
<tr>
<td>12.2</td>
<td>Changes Of and Within Government.</td>
<td>35</td>
</tr>
</tbody>
</table>
## Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>AEN</td>
<td>Asociación de Enfermeras/os Nicaragüenses</td>
</tr>
<tr>
<td>CCO</td>
<td>Canadian Cooperation Office</td>
</tr>
<tr>
<td>CIDA</td>
<td>Canadian International Development Agency</td>
</tr>
<tr>
<td>CNS</td>
<td>Centre for Nursing Studies</td>
</tr>
<tr>
<td>DAVSAV</td>
<td>Dirección del Área de Salud de Alta Verapaz</td>
</tr>
<tr>
<td>DET</td>
<td>Distance Education Technologies</td>
</tr>
<tr>
<td>DRH</td>
<td>Dirección de Recursos Humanos</td>
</tr>
<tr>
<td>ECACS</td>
<td>Estrategia de Comunicación y Acción Comunitaria en salud</td>
</tr>
<tr>
<td>ENEC</td>
<td>Escuela Nacional de Enfermería Cobán</td>
</tr>
<tr>
<td>GOG</td>
<td>Government of Guatemala</td>
</tr>
<tr>
<td>GON</td>
<td>Government of Nicaragua</td>
</tr>
<tr>
<td>HHR</td>
<td>Health Human Resources</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
</tr>
<tr>
<td>INSS</td>
<td>Social Security Institute of Nicaragua</td>
</tr>
<tr>
<td>MAIS</td>
<td>Modelo de Atención Integral en Salud</td>
</tr>
<tr>
<td>MDG</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>MINSA</td>
<td>Nicaraguan Ministry of Health</td>
</tr>
<tr>
<td>MSPAS</td>
<td>Ministry of Public Health and Social Assistance</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
</tr>
<tr>
<td>ONRMAE</td>
<td>Oficina Nacional de Registros y Métodos de Auxiliares de Enfermería</td>
</tr>
<tr>
<td>PAHO</td>
<td>Pan America Health Organization</td>
</tr>
<tr>
<td>PASSE</td>
<td>Programa de Atención al Servicio Social de Enfermería</td>
</tr>
<tr>
<td>PDCS</td>
<td>Professional Development and Conferencing Services</td>
</tr>
<tr>
<td>PIP</td>
<td>Project Implementation Plan</td>
</tr>
<tr>
<td>PHC</td>
<td>Primary Health Care</td>
</tr>
<tr>
<td>PROCOSAN</td>
<td>Programa Comunitario de Salud y Nutrición</td>
</tr>
<tr>
<td>PRSP</td>
<td>Poverty Reduction Strategy Paper</td>
</tr>
<tr>
<td>PSC</td>
<td>Project Steering Committee</td>
</tr>
<tr>
<td>RAAS</td>
<td>Región Autónoma Atlántico Sur</td>
</tr>
<tr>
<td>SEGEPLAN</td>
<td>Secretaría de Planificación y Programación</td>
</tr>
<tr>
<td>SIAS</td>
<td>Sistema Integral de Atención Familiar</td>
</tr>
<tr>
<td>SILAIS</td>
<td>System of Local Health Care Centres</td>
</tr>
<tr>
<td>TETRA</td>
<td>Tele-health and Education Technology Resource Agency</td>
</tr>
<tr>
<td>TULA</td>
<td>TULA Foundation</td>
</tr>
<tr>
<td>UCDSE</td>
<td>Unidad Coordinadora De Desarrollo De Servicios De Enfermería</td>
</tr>
<tr>
<td>UDSE</td>
<td>Unidad de Desarrollo de los Servicios de Enfermería</td>
</tr>
<tr>
<td>UPOLI</td>
<td>Universidad Politécnica de Nicaragua, Nicaragua</td>
</tr>
<tr>
<td>USAC</td>
<td>Universidad de San Carlos</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
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Executive Summary

The objective of the “Promoting Primary Health Care in Central America” project was to support the achievement of the millennium development goals in health in Central America by promoting primary health care nursing to improve access to health care in under-served rural communities of Nicaragua and Guatemala and to strengthen the policy dialogue on the role of primary health care nursing within health system reform programs. This report describes the project results for Nicaragua only.

In collaboration with MINSA and UPOLI, a carefully planned set of activities consistent with the project goals and objectives as outlined in the Logical Framework Analysis were implemented to improve access to primary health care nursing services in rural and remote communities of Nicaragua; and contribute to a HHR regulatory environment which recognizes the role of primary health care nursing.

The project achieved the expected results by accomplishing the following:

• increasing the number of health care workers available in vulnerable communities in rural and remote areas of Nicaragua;
• improving access to primary health care nursing services;
• improving the knowledge of community health nurses and other frontline health care workers;
• contributing to the development of a HHR regulatory environment which recognizes the role of primary health care nursing.

These factors increased the possibility of Nicaragua improving the health indicators in relation to the MDGs.

The beneficiaries of this project include the following:

• the newly trained health care workers, as well as those health care workers who received continuing education to better prepare them for their role in rural communities;
• the communities that received improved health care services;
• the population of men, women and children in rural and remote areas that have improved access to primary health care services.

The project has directly contributed to improved access to primary health care nursing services for more than 373,577 people in more than 494 rural and remote communities in the departments of Madriz, Nueva Segovia, Estelí, and the RAAS (Región Autónoma Atlántico Sur). In Nicaragua, approximately 51.3% of the population are female and approximately 37.5% are children under the age
of 15. Given that women and children generally tend to access health care services when needed and available, it is estimated that more than 119,778 women and 140,090 children (boys and girls) were positively impacted by this project and now have improved access to primary health care nursing services.

Education and training, both entry level education and continuing education, was completed for 542 men and women in rural and remote areas of Nicaragua.

- 61 new graduate auxiliary nurses were prepared by distance education in the departments of Madriz, Nueva Segovia and the RAAS;
- 21 Community Health Leaders were trained in the municipalities of Las Sabanas, Macuelizo and Mozonte in the Departments of Madriz and Nueva Segovia;
- 30 professional nurses completed the “Community Health Diploma” course in the departments of Madriz, Nueva Segovia, and Estelí;
- 312 nursing graduates received continuing education to prepare them for their role in rural communities by participating in the “Programa de Atención al Servicio Social de Enfermería” (PASSE).
- 118 others participated in workshops and conferences.

The original intent of this project was the education and training of auxiliary nursing personnel. However, in the early stages in Nicaragua, there was limited support for this approach from government. In addition, there was opposition from the Nicaraguan Nursing Association. With the support of CIDA and through negotiation with the rural communities involved, 21 “community Health Leaders” were educated. As the project progressed, the Nicaraguan government supported the education of auxiliary nurses.

The real challenge to extending primary health care coverage to rural areas was ensuring that, once trained, these primary health care workers would stay in their communities and provide health care services where they were needed most. This project was based on the belief that the education and training could be given quickly and effectively by utilizing distance learning methodology. The primary health care nurses were taught in their own communities or nearby districts. Following graduation, the graduates work and provide health care services in their rural home communities.

The vision of health care in Nicaragua places emphasis on Primary Health Care and Family and Community Medicine. The government of Nicaragua is promoting rural primary health care as outlined in the Nicaraguan Ministry of Health document, “Modelo de Atención en Salud Familiar y Comunitaria” (MOSAFC). In addition, the Plan Nacional de Desarrollo Humano (2008-2012) establishes Family and Community Medicine as the new approach, with specific emphasis on meeting the health needs of the poor and extreme poor. A principle of the model
is that it will be implemented with the participation of local organizations in the communities, will respond to regional differences and epidemiological profiles, and will promote decentralization of health management and administration.

Within the policy development component, government has outlined the role of preventative, primary health care within national health care delivery strategies in their current health care model. The Nicaraguan Ministry of Health has supported the implementation of this project and has recognized the role of nursing in providing primary health care services to rural areas.

This project was based on the belief that nursing personnel are able to deliver quality primary health care services in a cost-effective and equitable manner across a continuum of care while extending coverage to hard to reach populations in rural and remote areas.

In the latter stages of this project, the government and education partners exercised ownership and took an active role in achieving project results and contributing to sustainability. MINSA and UPOLI worked together to develop the set of activities necessary to achieve project results. There are a number of additional factors, as follow, that are important to the sustainability of these results.

- Appropriate curricula designed to provide the knowledge needed for primary health care workers in rural communities;
- An effective teaching model using distance methodology that allowed students to be educated in their home communities, thus increasing the likelihood that they would stay and work in that area following graduation;
- Development of institutional capacity for nursing education with distance methodology at UPOLI and MINSA;
- Achievement of technical capacity at UPOLI which included the existence of technical assets, as well as the knowledge and ability to manage these technical components;
- Development of an ICT Strategy that is an institutional framework for adopting new and emergent distance ICT platforms into the future;
- Appropriate distribution of the physical assets of the project;
- The possibility of income generation through cross-subsidization and delivery of broad-based continuing education programs for other sectors capable of paying for programming; and,
- The existence of a common vision for health care in Nicaragua which places emphasis on primary health care and family and community medicine.

The close collaboration between a university with the institutional and technical capacity to provide nursing education at a distance (UPOLI) and a government department and employer (MINSA) that supports the underlying vision and
concepts of primary health care nursing will enhance the sustainability of project results.

The rationale and justification for the project was clear, simple, and well defined. The need for cost-effective health care workers in rural areas was well documented. The implementation of programs to support the delivery of primary health care to underserviced remote areas continues to be a concept with significant validity in many developing countries. All graduates have remained in their home areas to work with their community, whether formally employed or otherwise.

Support from local government is critical to project success. It is important to work in a collaborative framework which considers the uniqueness and specific needs of the partner country. It is critical that the CEA develop and maintain strong communication links with local government officials. In addition, the collaboration between the local government and the local education partner contributed directly to the achievement of the expected results.

A mid-term evaluation was completed in February 2007 and provided guidance to strengthen the project. The mid-term evaluation recommendations were reviewed by CNS and CIDA to determine which were relevant in the current project context (See Appendix B). The project subsequently received an increase in time and funding which was essential to implement those recommendations, maximize results and ensure sustainability.

The project “Promoting Primary Health Care in Central America” has achieved the expected results as indicated in the LFA. Nursing is seen by stakeholders in Nicaragua as an important component of care within the primary health care delivery model.
Background and Purpose

The objective of the “Promoting Primary Health Care in Central America” project was to support the achievement of the millennium development goals in health in Central America by promoting primary health care nursing to improve access to health care in under-served rural communities. The project was originally planned for four Central American countries (Nicaragua, Honduras, Guatemala, and El Salvador). However, actual implementation occurred only in Nicaragua and Guatemala.

Consequently, the purpose of this project was to promote primary health care in rural communities in Nicaragua and Guatemala and to strengthen the policy dialogue on the role of primary health care nursing within health system reform programs.

As has been the practice with previous reporting in the project, the final reports are given separately to capture the unique situations in Nicaragua and Guatemala.

Nicaragua, with a population of 5.4 million, has a per capita GDP (Gross Domestic Product) of US $420. The poor economic performance means that 45.8% of people live in poverty and 15.1% in extreme poverty. Three quarters of rural inhabitants are poor and, of these, four-fifths are extremely poor. (PAHO: Health in the Americas, 2007).

As well as significant poverty, there are also major inequities in the health service coverage. The poor in Nicaragua experience higher levels of illness, are less likely to seek care, and spend a greater proportion of their income on health care. The rural-urban disparity in health care is quite pronounced and the government of Nicaragua is working to reduce this disparity. The incidence of illness is significantly higher in rural areas, yet significantly fewer rural poor seek care compared to the ill in urban areas. At any time, the rural population is 12 percent more likely to have untreated ill people than are the poor in the urban area.

This project was based on the belief that nursing personnel are able to deliver quality primary health care services in a cost-effective and equitable manner across a continuum of care while extending coverage to hard to reach populations in rural and remote areas.

The real challenge to extending primary health care coverage to rural areas was ensuring that, once trained, these primary health care workers would stay in their communities and provide health care services where they were needed most.
This project was based on the belief that the education and training could be given quickly and effectively by utilizing distance learning methodology. The primary health care nurses were taught in their own communities or nearby districts. Following graduation, the graduates work and provide health care services in their rural home communities.

**Summary of Project Results**

In Nicaragua, project results were accomplished by:
- increasing the number of health care workers available in vulnerable communities in rural and remote areas;
- improving access to primary health care nursing services;
- improving the knowledge of community health nurses and other frontline health care workers;
- contributing to the development of a HHR regulatory environment which recognized the role of primary health care nursing.

These factors increased the possibility of Nicaragua improving the health indicators in relation to the MDGs.

Working in collaboration with UPOLI (Universidad Politécnica de Nicaragua) and MINSA (Nicaraguan Ministry of Health), primary health care workers were educated in rural and remote areas of Nicaragua using distance education methodology.

The project has directly contributed to improved access to primary health care nursing services for more than 373,577 people in rural and remote communities in the departments of Madriz, Nueva Segovia, Estelí, and the RAAS (LFA - outcome #1). In Nicaragua, approximately 51.3% of the population are female and approximately 37.5% are children under the age of 15. Given that women and children generally tend to access health care services when needed and available, it is estimated that more than 119,494 women and 140,090 children (boys and girls) were positively impacted by this project and now have improved access to primary health care nursing services.

Within the policy development component, government has outlined the role of preventative, primary health care within national health care delivery strategies in their current health care model. The Nicaraguan Ministry of Health has supported the implementation of this project and has recognized the role of nursing in providing primary health care services to rural areas. They have indicated a desire to continue to work collaboratively with UPOLI to prepare nursing resources in rural areas. These factors indicate that the current HHR regulatory
environment recognizes the role of primary health care nursing (LFA - outcome # 2).

**Review of Project**

1.0 LFA (Logical Framework Analysis)

During the course of this project, the CNS, in collaboration with MINSA and UPOLI, implemented a carefully planned set of activities that were consistent with the project goals and objectives outlined in the Logical Framework Analysis, and which: 1) Improved access to primary health care nursing services in rural and remote communities of Nicaragua; and 2) Contributed to a HHR regulatory environment which recognizes the role of primary health care nursing. The project results linked directly to the LFA are outlined in the attached document.

2.0 Beneficiaries

The beneficiaries of this project include the following:
- the newly trained health care workers, as well as those health care workers who received continuing education to better prepare them for their role in rural communities;
- the communities that received improved health care services;
- the population of men, women and children in rural and remote areas of Nicaragua that have better access to primary health care services.

The following tables provide an overview of the estimated beneficiaries in Nicaragua. These numbers were determined through the systematization process (See Appendix G and H). They are based on the number of communities who have access to health care according to each SILIAS and the census information for Nicaraguan municipalities and communities. Not all of the beneficiaries indicated will avail of health services in any given year. However, the existence of the graduates has improved the accessibility to health care services for the individuals in these areas.
## Auxiliary Nursing Program

<table>
<thead>
<tr>
<th>Number of students who began the course</th>
<th>Number of graduates</th>
<th>Number of graduates employed</th>
<th>Beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>61</td>
<td>61</td>
<td>41</td>
</tr>
<tr>
<td>Women</td>
<td>44</td>
<td>Men</td>
<td>172</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Women</td>
<td>188,849</td>
</tr>
<tr>
<td></td>
<td></td>
<td>North</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>RAAS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Men: 57,482</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Women: 60,549</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children less than 15 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(boys and girls):</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>70,818</td>
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</tbody>
</table>

## Community Diploma Program (post-graduate)

<table>
<thead>
<tr>
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<th>Number of graduates</th>
<th>Number of graduates employed</th>
<th>Beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Women</td>
<td>30</td>
<td>Men</td>
<td>319</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Women</td>
<td>160,474</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Nueva Segovia</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Madriz</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Estelí</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Men: 48,845</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Women: 51,452</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children less than 15 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(boys and girls):</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>60,177</td>
<td></td>
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</tbody>
</table>
Community Leaders

<table>
<thead>
<tr>
<th>Number of students who began the course</th>
<th>Number of graduates</th>
<th>Beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>21</td>
<td>1) Mozonte</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Macuelizo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) Las Sabanas</td>
</tr>
<tr>
<td>Women: 11</td>
<td>Men: 10</td>
<td>Men: 7,383</td>
</tr>
<tr>
<td>Women: 11</td>
<td>Men: 10</td>
<td>Women: 7,776</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children less than 15 years (boys and girls): 9,095</td>
</tr>
</tbody>
</table>

Other Training and Continuing Education (during extension period)

<table>
<thead>
<tr>
<th>Training and Continuing Education</th>
<th>Number of participants</th>
<th>Beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Services Training (PASSE)</td>
<td>312</td>
<td>During the project, there were several continuing education activities implemented. These were not formal education programs but were opportunities for health care workers to increase their knowledge regarding health and nursing.</td>
</tr>
<tr>
<td>Gender Workshop</td>
<td>38</td>
<td>The participants of these opportunities were from many areas of Nicaragua. For example, according to MINSA, the 312 nurses of the PASSE will be assigned throughout all 17 SILIAS in Nicaragua.</td>
</tr>
<tr>
<td>Primary Health Care Conference (National)</td>
<td>50</td>
<td>The nurses who have additional knowledge because of these opportunities are direct beneficiaries. However, the exact number of beneficiaries, in terms of population, is difficult to determine.</td>
</tr>
<tr>
<td>Primary Health Care International Forum</td>
<td>30</td>
<td>Continuing education programs are well established learning opportunities for in-service nurses in Canada.</td>
</tr>
</tbody>
</table>
2.1 Graduates

Working in collaboration with UPOLI and MINSA, education and training, both entry level education and continuing education, was completed for 542 men and women in rural and remote areas of Nicaragua. More specifically, the project contribution to the health human resource capacity in Nicaragua is as follows:

- 61 new graduate auxiliary nurses were prepared by distance education in the departments of Madriz, Nueva Segovia and the RAAS;
- 21 Community Health Leaders were trained in the municipalities of Las Sabanas, Macuelizo and Mozonte in the Departments of Madriz and Nueva Segovia;
- 30 professional nurses completed the “Community Health Diploma” course in the departments of Madriz, Nueva Segovia, and Esteli;
- 312 nursing graduates received continuing education to prepare them for their role in rural communities by participating in the “Programa de Atención al Servicio Social de Enfermería” (PASSE);
- 118 others participated in workshops and conferences.

The original intent of this project was the education and training of auxiliary nursing personnel. However, in the early stages in Nicaragua, there was limited support for this approach from government. In addition, there was opposition from the Nicaraguan Nursing Association. With the support of CIDA and through negotiation with the rural communities involved, 21 “community Health Leaders” were educated. As the project progressed, the Nicaraguan government supported the education of auxiliary nurses. As well as auxiliary nursing education, a number of other continuing education opportunities were provided during the project.

Graduate Selection – Auxiliary Nursing Program

A significant factor in the success of this project was the method of student selection. The real challenge for this project was to extend primary health care coverage to rural areas and educate primary health care workers who were going to stay where they were needed most. The project was based on the belief that this could be done quickly and effectively by training primary health care auxiliary nurses who live in, and are taught in, their own communities. Following graduation, these health care workers stay in their home areas to provide health services through both their paid positions and as volunteers in their communities. What is also important to realize is that many of the graduates are indigenous people who come from rural areas of their departments, they have been selected by their own communities to participate in the program, and currently most are
either employed directly by the Ministry of Health or non-governmental organizations working in their communities.

Student selection in the auxiliary nursing program was based on a set of criteria established by UPOLI and MINSA. All students in the program were recommended by, and received the support of, their community. Most students were health promoters prior to becoming auxiliary nurses. Ideally, the graduates would be hired immediately after completing the program. This has not happened in all cases. However, because of the criteria used for student selection, these people are able to continue to work as health promoters in their communities as they await employment as auxiliary nurses.

2.2 Communities

It is estimated that more than 494 (four hundred and ninety four) communities have benefited from the addition of new health care workers and the increased knowledge obtained by those already employed in the health services sector. The size of the communities varies significantly. Some are very small villages in extremely remote areas that are accessible only by foot or animal. In many health posts the auxiliary or professional nurse is the individual providing most of the care. In these situations the doctor visits once or twice per week, or perhaps only once per month. During all other times, the nurse is providing care alone. In some of the larger communities, the graduate works as a member of a team.

As a result of the hiring of the graduates from the auxiliary nursing program, 4 previously closed health posts are now open. The people served by these health posts are from 11 communities with a population of 7,194. These people had no previous access to health services in their community. In 4 other health posts the services provided have been significantly strengthened. The health posts were previous staffed by only one auxiliary nurse. The addition of a second auxiliary nurse has improved the level of service and care provided to 36 communities and a population of 13,462 people.

The 30 professional nurses that completed the “Community Health Diploma” course continue to provide health service in their community. 11 of these nurses work alone and are the sole health care provider in the health post with a doctor visiting intermittently. These 11 nurses provide care for 80 communities with a population of 20,363 individuals.
Description of Benefits to Communities

As well as providing health care in their paid role, the auxiliary nurses, professional nurses, and community health leaders also provide a very valuable service to their community in an informal manner.

The following description is an illustration of the impact of one graduate on her community:

YADIRA lives in the community of San Marcanda, in the municipality of San Juan de Río Coco, in the department of Madriz. She was selected by the director of the health center in San Juan de Río Coco to study the Auxiliary Nursing Program, with the purpose of filling an existing void in San Marcanda. The health post was closed due to a lack of personnel to work there.

Yadira was hired to work at the health post 18 months ago. She works mostly alone to care for her community of 1,528 inhabitants. A doctor arrives only once every 15 days. Yadira is well accepted by the community. The people of the community are happy because the health post is opened 5 days per week. It is closed on weekends but when there is an emergency members of her community arrive to her house.

Yadira provides a variety of health services that include, but are not limited to, the following:

- family planning;
- child growth and development;
- immunizations;
- prenatal care;
- health promotion education on topics such as prevention of sexually transmitted disease, hygiene, and nutrition;
- emergency care, such as childbirths, accident, and firearm injuries.

When necessary, she calls for an ambulance using the radio equipment. This is the only means of communication. In a typical week, Yadira provides care for approximately 40 infants and children and 15 adults. Prior to the opening of this health post, members of the community walked for up to 5 hours to visit the nearest health centre. There is no public transportation in this area.

2.3 Population

It is estimated that more than 373,577 men, women and children have improved access to primary health care in rural and remote areas of Nicaragua.
This estimate is based on the population served in the areas where both the Auxiliary Nursing and Community Diploma graduates are employed, and the population of the communities where the Community Health Leaders reside.

There are a number of graduates in the RAAS that are not yet employed as auxiliary nurses but are providing volunteer services in their communities every day. Since these graduates are not formally employed, they are not included in the population estimate.

In addition, the graduate nurses that received continuing education to prepare them for their social services component for MINSA are not included in this estimate. These graduates are required to provide one year of service in a rural community following graduation from nursing school. According to MINSA, these 312 nursing graduates will be deployed to 17 departments of Nicaragua.

### 3.0 Sustainability

Our government and education partners in Nicaragua (MINSA and UPOLI) exercised ownership with the project and took an active role in achieving project results and contributing to the sustainability of the project. In particular, in the past 18 months, MINSA and UPOLI worked closely together to develop the set of activities that they saw as important to achieve the project results. There are a number of additional factors that are important to the sustainability of these results. These factors are discussed in the following sections.

#### 3.1 Curriculum

The curriculum content was designed to provide the knowledge needed for primary health care workers now and into the future. A number of different education components were developed and implemented in this project. For each of these, there were necessary variations in the primary health care information included. The one common and underlying factor in the curricula developed, and the educational courses and materials utilized, was that everything was based on the concept of primary health care. In addition, the curriculum contents were specifically designed for the reality of the rural areas where the graduates would apply their knowledge. The local health indicators were taken into consideration to ensure that the contents corresponded with the Nicaraguan epidemiological profile. As well, the concepts of gender and culture-specific care were incorporated. The concepts of gender and intercultural care are presented as “curriculum threads” in all modules. This indicates that in all
applicable areas of the curriculum, gender content is included. Examples of the incorporation of these concepts are included in Appendix A.

All curriculum components received approval from the ministry of health. As is typical of any curriculum, ongoing assessment of relevance, applicability and revision should be completed at regular intervals.

The curriculum developed for the auxiliary nursing program and approved by the ministry of health is currently being used to provide auxiliary nursing education in other nursing schools in Nicaragua.

3.2 Teaching Model

The teaching model used was critical to the success of the project. The use of distance education methodology allowed students to be educated in their home communities, thus increasing the likelihood that they would stay and work in that area following graduation. These graduates are ideally suited to work in their home communities. Unlike health workers hired from outside areas, these graduates are very familiar with the realities of rural life and the characteristics of language, culture and gender issues that must be considered in their communities. Local facilitators also know the language, gender issues, and culture of the area.

It is also important to consider that most of the students who were educated in this project live in poverty. Without direct financial support for their survival needs, they did not have the economic means to study. The model was designed so that students would remain close to home and have some days each week to continue with the employment responsibilities which supported their families.

For the reasons outlined above, the methodology chosen was effective to increase the number of educated health workers available for employment in the community.

3.3 Institutional Capacity

Our education partner, UPOLI, has made significant gains in the development and delivery of nursing education using distance education methodology. Their capacity to offer programming using this methodology has now expanded to the degree necessary that they are able to offer both entry-level and continuing education programs to both professional and auxiliary nurses. Additionally, they
have the possibility of offering education to other disciplines using this technology and incorporating advances in the technology framework.

The strengthening of institutional capacity in relation to nursing education was also achieved at MINSA. The nursing education personnel at MINSA worked closely with UPOLI to develop and provide training to prepare graduates for their role in providing care in rural communities. Additionally, the “Department of Regulations for Health Professionals” health educators at MINSA are fully aware and understand the potential benefit of distance technology in providing health education in a cost-efficient manner to rural areas of Nicaragua. The “Department of Regulations for Health Professionals” now has a data-base system to track the placement of health human resources during the required social services component of health education in Nicaragua. In addition, the “Department of Regulations for Health Professionals” personnel are working collaboratively with UPOLI and have verbalized strategies to work together for improved health education in Nicaragua.

Strengthening of capacity at other nursing education facilities in Nicaragua was also achieved. At the request of MINSA, the CEA negotiated that the delivery of the program in the RAAS, be a collaborative approach incorporating the Polisal and Bluefield’s Schools of Nursing. This approach was effective in introducing two other nursing schools to distance delivery methodology. In addition, it strengthened the relationship among schools of nursing in Nicaragua.

3.4 Technical capacity

Technical capacity implies the existence of the necessary technical assets, as well as the knowledge and ability to manage these technical components. In collaboration with the CNS and Canadian technology experts (Professional Development and Conferencing Services at Memorial University – PDCS, formally known as TETRA), the development of technical capacity has progressed steadily over the timeframe of the project. The UPOLI technical team can manage the technology and equipment with minimum support. The technical framework has progressed to an online web-based delivery system. The UPOLI technical department has the capacity to manage this system.

Synergy between projects is evident as the nursing department at UPOLI utilized the equipment from another donor (Foundation One) to deliver the on-line components of the diploma program during the extension phase of this project.
3.5 ICT (Information and Communication Technology)

The results achieved by the project are based on an ICT choice which was the most effective and appropriate technology for reaching the target population in remote areas of Nicaragua at the inception of the project. The audioconferencing and telewriter combination was an ideal framework to deliver education to remote areas, many with a single low band width telephone line and no access to internet.

As conditions within the country changed and the local technical capacity improved, it was important to determine, with our partners, an institutional framework for adopting new and emergent distance ICT platforms which would carry them into the future. During the extension phase of the project, nursing education was delivered using an on-line platform to areas of the country where this was an option.

In terms of sustainability, UPOLI will continue to use the audioconferencing and telewriter combination in remote areas that do not have access to internet. In areas where internet capability exists, the on-line options, as outlined in the ICT strategy, will be utilized.

3.6 Physical assets

MINSA and UPOLI are in agreement that the equipment purchased to deliver distance education will remain at UPOLI. MINSA recognizes that UPOLI has the institutional capacity to support them in the delivery of health education within the country. They have agreed to work together to deliver nursing education using distance methodology to remote areas of Nicaragua. See Appendix C for the minutes of the PSC meeting which outline the agreements in this area.

3.7 Cross Subsidization

Cross-subsidization is seen as a strategy which will contribute to sustainability. Cross-subsidization can be achieved through the delivery of broad-based continuing education programs for both professional and auxiliary nurses and other health care providers. UPOLI and MINSA have discussed using this strategy to deliver education and training to individuals and/or non-governmental organizations that are capable of paying for programming. The income received may be used to offset the cost of delivery of the nursing auxiliary program to men and women in rural and remote areas of the country who do not have the financial capacity to cover the entire cost of the program.
3.8 Ministerial Commitment

The commitment of the government of Nicaragua is important to the sustainability of the project. The vision of health care in Nicaragua has changed to one that places much greater emphasis on Primary Health Care and Family and Community Medicine. The government of Nicaragua has indicated its commitment to promoting rural primary health care as outlined in the Nicaraguan Ministry of Health document, *Modelo de Atencion en Salud Familiar y Comunitaria* (MOSAFC). In addition, the *Plan Nacional de Desarrollo Humano (2008-2012)* establishes Family and Community Medicine as the new approach, with specific emphasis on meeting the health needs of the poor and extreme poor in an integrated fashion. It also guarantees universal and free access to these services. A principle of the model is that it will be implemented with the participation of local organizations in the communities, will respond to regional differences and epidemiological profiles, and will promote effective decentralization of health management and administration.

3.8.1 Commitment to Primary Health Care

The model described above confirms the government commitment to primary health care. This model of family and community health is based on principles of primary health care as set out in the Alma Ata Declaration of 1978 and is consistent with the model of care conceptualized in this project. Previously, the model of care promoted in Nicaragua was the MIAS (*Modelo de Atención Integral en Salud, 2004*), which placed much less support on the primary health care framework and included programs to privatize elements of the public health care system.

In Nicaragua, the Ministry of Health has adjusted the health human resource framework to recognize the cost effectiveness of nursing in contributing to the achievement of the Millennium Development Goals in health, particularly with respect to reducing infant, child, and maternal mortality rates in the areas of the countries which have the highest indicators.

3.8.2 Commitment to Graduate Employment

MINSA supports the cost-effectiveness, relative to other health human resource strategies, of educating and training rural primary health care nurses to address infant, child, and maternal mortality rates and health care in rural areas of the
country. The MINSA representative has verbalized that the government is committed to hiring the graduates of the auxiliary nursing program as they need these human resources in their regions. In the North (Nueva Segovia and Madriz) all of the auxiliary nursing graduates have been hired. In the RAAS, however, only 11 of the 31 graduates have been hired. This is due to economic conditions and lack of funding to hire these nurses. Government has indicated that they would re-evaluate the possibility of hiring the remaining graduates in April of 2009. As graduates await full-time employment, they continue to work as health promoters in their communities and they also volunteer at the health post for two days per week. They receive a small stipend for this volunteer work. These graduates expect to be hired when the government has the economic capacity to do so. In the meantime, they will remain in their communities and work with the community as health promoters. Since the auxiliary nurses were health promoters prior to entering the program, they continue to be employed in this capacity as they wait for employment as auxiliary nurses.

3.8.3 Policy Implications

Evidence of policy change to move towards a primary health care model of health care delivery exists. As a component of the PASSE, all graduate nurses who will complete their social services component in 2009 received the *Macro Legal del que – Hacer de Enfermería*. This document outlines the legal framework for nursing activities under the General Health Law. Primary health care concepts are evident throughout this document. For example, health promotion and protection, disease prevention, and improved accessibility of health services are identified as fundamental to the current model of health care. It is also indicated that MINSA, through the Department of Regulations for Health Professionals, will strengthen the process to update health professionals. To achieve this, the department has institutionalized the PASSE. This program is incorporated in the MINSA budget for 2009 and will be used annually to prepare graduate nurses to work in rural communities during their social services year.

3.9 Institutional Linkages

3.9.1 Tula Foundation

The CNS developed a partnership with the Tula Foundation, a Canadian philanthropic organization based in British Columbia (www.tula.ca). This collaboration resulted in an innovative approach which gave financial flexibility to
the project and allowed programming that was complementary to and supportive of CIDA project activities. In Nicaragua, the Tula Foundation funded a large component of the project extension in the RAAS. In addition, the Tula Foundation, along with the CNS and PDCS, funded the ICT strategy assessment. This strategy provided the framework for decision making with respect to technologies.

3.9.2 MINSA and UPOLI

UPOLI, MINSA, and CNS have worked together very effectively in the past eighteen months. The close collaboration between UPOLI and MINSA is very positive for health care and for nursing in Nicaragua. This collaboration between a university with the institutional and technical capacity to provide nursing education at a distance (UPOLI) and a government department and employer (MINSA) that supports the underlying vision and concepts of primary health care nursing will enhance the sustainability of project results.

4.0 Mid-term Evaluation

The mid-term evaluation provided important guidance to strengthen the project. A number of components of subsequent work plans were based on the recommendations of the evaluation. The mid-term evaluation recommendations were reviewed by CNS and CIDA in September, 2007 to determine which were relevant in the current project context. A summary of the recommendations determined to be relevant and the activities implemented in relation to those recommendations are provided in Appendix B. The project subsequently received an increase in time and funding which was essential to implement those recommendations, maximize results and ensure sustainability.

5.0 Millennium Development Goals (MDGs)

The proposed long-term impact of this project was to contribute toward the achievement of the Millennium Development Goals in health, particularly with respect to reducing infant, child, and maternal mortality rates. The true impact of the project on the MDGs cannot be measured this soon, but should be more evident in the next five years. However, as the individuals who receive education and training are hired and/or return to their place of employment and home community, they participate in a number of activities that have the potential to contribute to the achievement of the MDGs in health.
To determine the full impact of this project in the future, it will be necessary to consider the statistical mortality data. This data is difficult to obtain in a timely manner with assurance of accuracy. Data provided by fairly reliable sources such as WHO and UNICEF is often not a recent as needed.

To consider this component in a preliminary manner, the mortality data currently available from a variety of difference sources is provided in the table that follows. This is very early data, mostly from local sources, and should be viewed in consideration of this.

An assessment of the weekly activities carried out by graduates in the workplace and their community indicate that they are providing care that contributes to the achievement of the following millennium development goals:

**Goal 4: Reduce child mortality**

- Prenatal care
- Nutritional support
- Infant and children growth monitoring programs
- Detection and treatment of child prevalent diseases (e.g.: diseases of the respiratory tract and care and rehydration for acute diarrhea)
- Health promotion and disease prevention (e.g.: promotion of safe sanitation, hygiene and dental health)
- Immunization and vaccination programming
- Emergency care in relation to illness and injury (e.g.: broken bones, food poisoning)

**Goal 5: Improve maternal health**

- Fertility control and family planning
- Prenatal care
- Nutritional support and supplementation
- Pregnancy growth monitoring programs
- Delivery support
- Post-delivery care
- Health promotion and disease prevention (e.g.: assessment and support in family violence and abuse situations)
- Early detection programming (e.g.: detection of cervical-uterine and breast cancers)

**Goal 6: Combat HIV/AIDS, malaria and other diseases**

- Nutritional support
• Health promotion and disease prevention (e.g.: tuberculosis control, acute diarrhea control, safe food handling, safe sexual practices)
• Immunization programming (e.g.: application of measles vaccination)
• Sample collection for infectious diseases
• Emergency care in relation to illness (e.g.: acute dehydration, pneumonia)

Many additional factors outside the scope of this project will contribute to improvement in the mortality rates. Given that graduates are working and providing health services as outlined above, they are contributing to the achievement of the MDGs.

The following table demonstrates improvement in all three mortality statistics for the country. In addition, these indicators have also improved in two of the municipalities where graduates are employed - San Juan de Rio Coco and Murra. Data are provided for these two municipalities as there are a larger number of graduates currently employed in these areas; 4 graduates employed in San Juan de Rio Coco and 6 graduates employed in Murra.
# Infant, Child, and Maternal Mortality Indicators

## Nicaragua and the Municipalities of San Juan de Río Coco and Murra

<table>
<thead>
<tr>
<th>AREA</th>
<th>Maternal Mortality (per 100,000)</th>
<th>Infant Mortality (Under 1 mortality per 1,000 live births)</th>
<th>Child Mortality (Under 5 mortality per 1,000 live births)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicaragua</td>
<td>69.8    73.6  86.5  88.2</td>
<td>31  33  31  45</td>
<td>38  40  41  40</td>
</tr>
</tbody>
</table>

Data sources for country statistics above:
- ENDESA (Encuesta Nacional de Demografía y Salud)

<table>
<thead>
<tr>
<th>AREA</th>
<th>Maternal Mortality (actual mortality)</th>
<th>Infant Mortality (actual mortality)</th>
<th>Child Mortality (actual mortality)</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Juan de Río Coco</td>
<td>0  0  0  0  8  9  10 n/a</td>
<td>1  1  1 n/a</td>
<td></td>
</tr>
<tr>
<td>Murra</td>
<td>1  2  1  0  4  6  15 n/a</td>
<td>N/A  N/A  N/A  N/A</td>
<td></td>
</tr>
</tbody>
</table>

Data source for municipal statistics above:
The SILIAS in the municipalities of San Juan de Río Coco and Murra.
6.0 Gender

Gender was a crosscutting theme for the project. All activities planned in relation to gender in the extension period occurred as outlined in the work plan (2008-2009). In all project aspects, including curriculum development, gender concepts and considerations were included (See Appendix A). Educational objectives were outlined with consideration for the degree of information and sensitization that students had regarding gender. Most students, due to cultural surroundings, considered as normal many beliefs, practices and attitudes that affect the well-being of women. They practice these attitudes by tradition without considering them harmful to their individuality as men and women.

During the student selection process, support to women was achieved by giving priority to female candidates who fulfilled the entrance requirements. Given the traditions and customs in the rural society, women are often discriminated against in relation to opportunities to study and become educated. This is seen in rural areas of Nicaragua, and many health care workers in these areas are men. Of the 21 community health leaders, 61 auxiliary nurses and 30 graduates of the community diploma program for professional nurses, 84 (75%) were women. In addition, in all continuing education programs implemented in this project, most of the participants were female.

Having a post secondary education and securing a means of income is vital for economic independence. Education offers a means of self sustenance for women. Women are receiving education and training that was not available or accessible to them prior to the onset of the project. The opportunity to further one’s education builds capacity for future growth, fosters personal and professional development, and improves self esteem for women. These women have been empowered to participate in these courses and many are interested in continuing with their education.

In addition, the nursing teachers have also gained valuable experience from participating in this project. Faculty have overcome and learned to manage challenges faced in course delivery. They have been influential in lobbying government politicians and other decision makers for recognition of the project, funding opportunities, support, and approval of programs. Throughout the project, these women have been instrumental in having the voice of the students and the project heard at various levels of government, from municipal to national/federal.

In Nicaragua, approximately 51.3% of the population are female and approximately 37.5% are children under the age of 15. Given that women and children generally tend to access health care services when needed and
available, it is estimated that more than 119,778 women and 140,090 children (boys and girls) were positively impacted by this project and now have improved access to primary health care nursing services.

In summary, the results of this project can be discussed from the perspective of gender equality as incorporated into many of CIDA’s overarching programming priorities (CIDA Policy on Gender Equality, 1999). Poverty reduction was supported through training and education for women and men for income generating positions. The curricula incorporated training and education into meeting basic human needs. Students were taught concepts related to the importance of nutrition, sanitation, infection control, family planning, and these are considered basic health care priorities. Recognition and respect of human rights was paramount. People were treated fairly as students and citizens, and the programs were offered in sites that facilitated an opportunity for them to capitalize on the right to education. This project supported communities to obtain timely access to a health care provider. Women were involved in the development of this project. The nursing faculty were women, and at various points during the project, the individuals who were in decision making positions within government were women.

CIDA (1996 cited in CIDA Policy on Gender Equality, 1999) identifies a number of good practices to consider in gender analysis. These include: the project placing people front and centre; having skilled professionals involved; retaining the involvement of local experts with solid backgrounds in gender equality issues; and involving significant numbers of women and key women members of partner organizations. This project incorporated these points throughout its various stages.

7.0 Project Rationale and Justification

The rationale and justification for the project was clear, simple, and well defined. The need for cost-effective health care workers in rural areas was well documented. The implementation of programs to support the delivery of primary health care to underserviced remote areas continues to be a concept with significant validity in many developing countries. All graduates have remained in their home areas to work with their community, whether formally employed or otherwise.

Nicaragua and Guatemala: A comparison

A review of the expected outcomes of this project indicates that the results achieved were positive for both Nicaragua and Guatemala. There were different
successes, achievements, and challenges in each country. In addition, lessons learned during the initial pilot phase in Nicaragua could be applied during the implementation of the project in Guatemala.

In terms of the availability of new primary health care workers, the project achieved greater success in Guatemala where the number of graduates from the auxiliary nursing program was 169 compared to 61 in Nicaragua.

In Guatemala, the focus of this project was almost entirely on the education of community auxiliary nurses. However, in Nicaragua, other front-line workers such as “Community Leaders” and “Community Diploma Nurses” completed a formal training program.

Because of the larger number of graduates in Guatemala, the beneficiary reach is far greater with a larger number of men, women and children having improved access to primary health care services.

In both countries, there was significant additional knowledge transferred and obtained by health care workers through the implementation of other continuing education programs and workshop. However, the beneficiary reach of these continuing education programs and workshops is very difficult to measure.

There are a number of factors that contributed to the greater success in Guatemala. These factors are as follows:

- The Guatemalan government gave initial support for this project and this support has continued for the duration of the project. While government support in Nicaragua is clearly evident now, it was less consistent early in the project.
- The government representative on the PSC in Guatemala was consistent and never wavered in support for the implementation of activities. In Nicaragua, there were multiple changes in the PSC representative until the current government. Since the current government in Nicaragua came into office, the PSC representative has been consistent.
- ENEC is a government operated school of nursing with a strong and stable relationship with government from the beginning. UPOLI is a private institution.
- From the beginning, the project intent was consistent and aligned well with the plan for health services delivery in Guatemala. In Nicaragua, the health delivery model and vision for health care of the current government is in greater alignment with the project than that of the previous government.
- Support for the education and training of this level of worker has been evident in Guatemala since the beginning. In the initial phase of the project in Nicaragua, there was limited support for the education and training of auxiliary nurses, both from the Nicaraguan Nursing Association and
Promoting Primary Health Care in Central America
Final Report – Nicaragua
March 2009

government. Consequently, the initial workers educated in Nicaragua were “Community Health Leaders”.
• In Guatemala, the financial contribution of the Tula Foundation provided support for a greater number of students enrolled in the program. This directly increased the beneficiary reach achieved in Guatemala.
• In Guatemala, almost all graduates have been hired, mostly by Guatemalan government run health programs. The economic conditions in Nicaragua have prevented this.
• The faculty engaged in the program at ENEC has been consistent whereas faculty changes within the School of Nursing at UPOLI have led to some inconsistency within the project in Nicaragua.
• The relationship between the local project coordinator and the director of the school of nursing in Guatemala was much stronger than that evident in Nicaragua. In both countries, the financial aspects of the project were managed by the local project coordinator. However, in Guatemala this occurred in close collaboration with the director of the school. In Nicaragua, the director of the school of nursing had little participation in the financial management of the project. Strategies were implemented in the past 18 months which effectively addressed this concern in Nicaragua.

All of the factors above contributed to the greater success and smoother implementation of the project in Guatemala.

In the final year of the project, there was significant support in Nicaragua and the factors that contribute to success, as outlined below, were well aligned:
• Government support for the cost-effectiveness of auxiliary nurses to provide primary health care services;
• Government support for actual project implementation;
• Consistent PSC representation;
• Effective, working collaborative relationship between government and the education partner;
• Strong working relationship between the local project coordinator and director of the school of nursing;
• Financial management of the project by the director of the school with practical support from the local project coordinator; and finally,
• Recognition by all participants of the possibilities for nursing education using distance methodology in Nicaragua. Currently, the Nicaraguan government is supporting the education of auxiliary nurses in several programs throughout the country.

Currently, the Nicaraguan government is supporting the education of auxiliary nurses in several programs throughout the country.
8.0 Cost of Distance Education

UPOLI completed an analysis of the actual cost to provide nursing education using distance methodology compared to providing the same education in the classroom. UPOLI has identified that the actual costs are quite similar. The cost of US$650.00 for one student via distance is comparable to the cost of US$600.00 for one student studying in the classroom.

It must be considered, though, that students in the rural areas of Nicaragua do not have the economic means to travel to larger centres like Managua to study in a typical classroom environment. Nor do they have the economic resources to study in their home communities without financial support. So while the actual institution costs are very similar, most students in rural areas would require a scholarship or some other form of financial support to succeed. This would increase the cost to implement the education program.

This project was effective in demonstrating to the government and educators in Nicaragua, the cost-effectiveness of using distance education methodology to provide education to rural and remote areas.

9.0 Other significant information

9.1 Adaptation to Technology

The experience of rural students and regional health officials was that of a typical classroom with a teacher present. Consequently, many people in rural areas were not convinced that auxiliary nurses could be trained in rural communities in this manner. This was not surprising. Even when we want change, it is not always easy to accept. Initially, students were very reluctant to use the technological equipment. They were worried about breaking it or causing it to malfunction. However, as is typical of the learning process, with time and experience students and facilitators overcame this fear. The use of this methodology is now widely accepted as a viable and valuable means to provide education to people who would not otherwise have access to education.

9.2 Lack of Attrition

Unlike typical education programs, there was very little attrition in any of the programs offered in this project. This is likely due to the method of student selection which resulted in the intake of strongly motivated students who had significant support from their home communities. In most cases, given their remote locations and the significant poverty in which they lived, this was likely the only opportunity for them to study and obtain skills to earn a living to support
themselves and their families. Additionally, the faculty and facilitators involved in program delivery were well aware of the cultural and language issues faced by these students, particularly those of indigenous students. The faculty was able to offer support that resulted in a number of students completing the program despite several possibilities of leaving prior to completion.

9.3 Opening of Health Centres
A goal of this project was to extend health coverage to rural and remote areas of the country. A significant outcome of this project was the opening of new and reopening of previously closed health centres and posts. This has resulted in accessibility to health services in areas where no previous care was possible.

10.0 Financial Management
The project financial documents are provided separately.

Lessons Learned

11.0 Project Activities - Logistical Considerations - in the field

11.1 Local Government Support
Support from local government is critical to project success. It is very important to work in a collaborative framework which considers the uniqueness and specific needs of the partner country. It is critical that the CEA develop and maintain strong communication links with local government officials. Local government support will increase the likelihood of the project achieving the intended results. In a project such as this, where government must certify the graduates to allow them to work, and hire them as well, this strong link is critical to success.

For the activities implemented in the project, local government support was needed and was evident. Some examples include:

- Government identified professional nurses who were paid by them to work as student facilitator’s;
• Rural ministry officials assisted in the process of both site and student selection;
• Municipal governments provided support by giving the only telephone line for the community for use in the program.

11.2 Power Outages and Poor Weather Conditions

Unplanned power outages in both the RAAS and northern Nicaragua and an inability of students to travel as a result of poor weather, flooding and high winds, interfered somewhat with the teaching schedule. Additionally, some downtime occurred due to scheduled power outages by the utility companies. To overcome these issue, the in-country coordinator worked with the mayors of the towns and located power generators that were used whenever the electricity failed in the teaching sites. In addition, the preceptors completed portions of the teaching when required because of power outages. This allowed teaching to continue with as little interruption. When students could not attend due to weather conditions, readjustment of the teaching schedule by UPOLI occurred.

11.3 Varying Levels of Education and Language Diversity

Not all students accepted into the program had completed the same level of education and, consequently, their academic ability varied. Faculty and preceptors were challenged to provide additional academic support to students to enable them to complete the program requirements. Also, students in the RAAS spoke a variety of different local dialects. Faculty were challenged to ensure that students had a clear understanding of the concepts being taught. Once identified, these concerns were effectively overcome with appropriate strategies. In future programming it is important to ensure that these potential issues are considered at inception with strategies identified to ensure the success of those chosen by the community.

11.4 Clinical Considerations

There were very few clinical placement concerns during the course of the project. Students attended clinical practice opportunities at the local health centres. Additionally, as possible and when necessary, they travelled with local health brigades to more distant areas to provide care. This was effective in providing the training that students needed to prepare them for the realities of rural health care.
There was a concern in the RAAS which should be considered in future projects of this nature. In the year that the auxiliary nursing program was taught in the RAAS, the birth rate for the communities of Kukra Hill and Laguna de Perlas was less than normal for that area. Consequently, at official course completion date, not all students had participated in the required number of experiences in "delivery attention". Six students were required to complete additional experiences in this area. This was an unusual circumstance but, as it is a possibility, a contingency plan for students to attain the appropriate number of experiences is necessary.

11.5 Financial Difficulties (for Students)

Some students experienced financial difficulties, particularly due to the high costs of transportation to the teaching sites. Several strategies were implemented to deal with this situation. In subject areas where it was possible, there was some combining of teaching experiences to decrease the amount of travel required. Some clinical experiences were arranged at health posts located closer to the students' home communities. In addition, the becas (scholarships) given to students were increased as necessary to help offset these costs. The mayors of the towns also supported the students with donated food and accommodations as needed during the course. It is very important that the situation of significant economic hardship for these students be considered. With the support of the Tula Foundation, the CEA was able to provide additional funding in these circumstances. In addition, the methodology chosen was effective in allowing the students continued opportunity for paid work. As the usual one-year program was delivered over a fifteen-month period, students were not required to be in school 5 days per week and, therefore, had some additional time for paid employment to support their families.

12.0 Political considerations

12.1 Similar Vision

The original intent of this project was the education and training of auxiliary nursing personnel. However, in the early stages in Nicaragua, there was limited support for this approach from government. In addition, there was opposition from the Nicaraguan Nursing Association. With the support of CIDA and through negotiation with the rural communities involved, 21 “community Health Leaders” were educated.
As the project progressed, the Nicaraguan government supported the education of auxiliary nurses and the belief that nursing personnel can deliver quality primary health care services in a cost-effective and equitable manner to hard to reach populations in rural and remote areas.

In addition, in relation to the political climate, it is important to identify that a number of challenges encountered. It was not until the final years of the project when the MOSAFC was introduced, that the model of health in Nicaragua was very consistent with the vision of the project. If this degree of consistency had been evident in the first years of the project, it is likely that greater results would be evident.

12.2 Changes Of and Within Government

An additional challenge was related to changes within government. The national government of Nicaragua changed during the project implementation. As is not unusual, there was a noticeable slowing of project implementation in the six months before and the six months following this change of government. Additionally, there have been ongoing changes in the National Nursing Department within MINSA, as well as frequent changing of the government representative at the steering committee level. The need for continued orientation to the project goals, objectives, and anticipated results often led to a delay in approval of annual work plans.

To ensure that projects progress toward achievement of expected outcomes in a timely manner, it is critical that the CEA maintain effective communication with local government. Frequent contact is critical. Additionally, at project inception with a bilateral project, it is important to ensure that the goals of the project are consistent and comparable to the government vision and strategy. A change in government during a project is common and the CEA must put in place strategies to ensure that the projects progress is not negatively affected by this change. With the support of local CIDA representatives, it is imperative that the project be presented to the new government early in their administration and that their input be sought as soon as possible. Since it is quite likely that the vision of the new government will be different from the previous government, the CEA must work with the new administration to determine the components of the project that they support and to seek their input to develop strategies to find solutions when there is not agreement. The Canadian CEA needs the support of the local CIDA representatives, who are intricately aware of the in-country situation to facilitate ongoing project implementations during and after the change of government administration.
12.3 Graduate Employment

This project was based on the belief that following completion of the nursing education program, graduates would be employed to provide health services in their communities. In Nicaragua, while some auxiliary nurses are hired by local NGO’s, government is the main employer. Despite ongoing verbal commitments from the current government, at both the regional and national level, not all graduates in the RAAS area of Nicaragua have been hired. The economic conditions in Nicaragua have contributed to this.

Most students were health promoters prior to becoming auxiliary nurses and were supported by their community to study in this program. Because of the criteria used for student selection, these graduates continue to work as health promoters in their communities as they await the promised employment as auxiliary nurses. The PSC representative from MINSA has given a verbal commitment that all the auxiliary nurses will be hired when the economic circumstances permit.

The rural and remote areas of Nicaragua will receive the greatest benefit from this project if graduates are hired and providing care in a formal manner in their communities. In this project, the CEA and educational partner promoted to the local NGO’s, the availability for hire of the additional health care workers. In subsequent projects of similar intent, the CEA should work with local government and other NGO’s to develop additional strategies to offset this risk. A possible strategy is to seek additional support from another funding agency to facilitate the hiring of these new health human resources. For example: a collaborative strategy between the CEA, local government and an international funding agency such as the Inter-American Bank may be effective in ensuring post graduate employment. This is another area where the CEA could work closely with the local government to strategize for solutions if government is not able to employ the auxiliary nurses.

The Nicaraguan government recognizes the cost effectiveness of nursing in providing rural primary health care and contributing to the achievement of the Millennium Development Goals in health. The CEA expects that the graduates in the RAAS who have not yet been hired, will be employed as the economic situation allows.

12.4 Effective Communication

Enhanced communication between all partners involved in the project has had a direct positive impact on the motivation of all partners. In addition, it was
essential to clarify the role of all individuals. Effective communication and role clarification among partners have contributed to improved local ownership, which will impact positively on project sustainability. Effective collaboration, evident between UPOLI and MINSA, will increase the likelihood that health education using distance methodology will continue following the conclusion of this project.

12.5 Project Results not Sustainable in the Local Context

As with most projects, the possibility of non-sustainability of project outcomes is a possibility. In Nicaragua, there are at least 2 possible scenarios that could result in the project impact not being sustainable over the long-term. One risk to sustainability, discussed previously, is the lack of hiring of graduates which would impact on project results at a local level.

Secondly, the possibility that nursing education in rural and remote areas will not continue in the future is seen as a risk to sustainability. This risk exists in Nicaragua because UPOLI is a private institution. While UPOLI does receive some government support, it is not directly operated by government. UPOLI was identified in the MOU signed between the governments of Canada and Nicaragua as the education partner for this project. The MOU was signed by the government in power at that time.

Following the change in government in 2007, the current government clearly identified both its concern that the partner education was a private school not directly connected to government, as well as a reluctance to work with them. However, in the final 18 months of the project, the CEA, UPOLI and the MINSA Department of Regulations for Health Professionals worked very closely, particularly in the extension period. UPOLI worked very effectively with the MINSA Department of Regulations for Health Professionals with the goal of strengthening their relationship to ensure collaboration in the future delivery of nursing education via distance methodology. This strategy was very effective and both UPOLI and MINSA representatives have clearly verbalized their support of each other and their willingness to work together to deliver nursing education in the future. This intent is documented in the final PSC meeting at the request of the MINSA representative (see Appendix C).

In the current context, the strategy implemented by the CEA and UPOLI appears to have been effective. It is important that, at the project inception phase, the CEA assess the alliances that exist among all potential project partners. Following this assessment, the CEA will be in the best position to select those that will most likely create strong alliances and work effectively together to achieve the intended project impact.
13.0 Logistical Considerations (Canadian)

13.1 Time-frames

The timeframes for submission of documents as outlined in the contribution agreement must be realistic for the executing agency. It is important that the executing agency ensure that they are able to meet the timeframes as outlined. For example, in a large organization such as Eastern Health, finalizing financial statements within 30 days after the end of the reporting period presented a challenge, considering expense reports first had to be completed in the field, sent to the CEA project office to be summarized and coded, and then forwarded to the Eastern Health Finance Department.

CIDA and the CEA negotiated that the timeframe for submission of financial reports be extended to 45 days.

13.2 Mid-term Evaluation

The mid-term evaluation provided important guidance to strengthen the project. A number of components of the subsequent work plans were based on the recommendations of the evaluation. The mid-term evaluation did, however, occur later than the midpoint of the project. Unfortunately, this timeframe resulted in little time remaining to implement the recommendations that were determined by CIDA and CNS to be relevant in the current project context. Subsequently, the project received an increase in time and funding which was essential for maximum results and sustainability. The success of a project can be enhanced with the timely receipt of constructive feedback.

13.3 The Logical Framework Analysis: The Impact

The full impact of this project will not be evident for a number of years into the future. The impact component of the LFA was based on improvement in the MDG’s for health for Nicaragua. To determine this impact, it will be necessary to consider the statistical mortality data. This data is difficult to obtain in a timely manner with assurance of accuracy. Data provided by fairly reliable sources such as WHO and UNICEF is often not a recent as needed.
13.4 The Gender Component

Gender was considered a cross-cutting theme within this project. CNS viewed the integration of gender considerations as a critical component throughout the planning and implementation of project activities. During the project implementation, however, there were divergent opinions between CIDA and the CEA on the appropriate inclusion of gender considerations. To ensure that gender considerations are incorporated according to CIDA’s policy, it is crucial that the CEA consult with CIDA gender specialists at all stages of the project from planning to implementation. Additionally, due to the unique circumstances which define and impact gender issues (urban versus rural considerations; indigenous considerations; cultural elements) the CEA must obtain input from local gender experts.

13.5 Consistency

Consistency in project officers at CIDA is of great importance to the smooth progression of a project. Up to mid-2007, there were approximately 7 officers assigned to the project. Frequent changes of project officers will result in the need for frequent orientation, loss of momentum, and possible delays in the progress. The CEA must maintain close communication with the project officer particularly when change occurs, either at CIDA or the CEA.

14.0 The Future

The rationale and justification for this project was clear, simple, and well defined. The need for cost-effective health care workers in rural areas continues to be well documented. The implementation of programs to support the delivery of primary health care to underserviced remote areas is a concept with significant validity in many developing countries. This project has been effective in extending health care coverage to rural areas where limited or no access previously existed. In subsequent projects, it would be important to incorporate the lessons learned to facilitate successful achievement of expected results.

There are a number of significant lessons to consider including the following: close alliance with the funding agency representatives; effective communications with CEA, local government and educational partners; clear, consistent communication between all partners; inclusion of all stakeholders and incorporation of opinions of all stakeholders from project inception.
Conclusion

The objective of the “Promoting Primary Health Care in Central America” project was to support the achievement of the millennium development goals in health in Central America by promoting primary health care nursing to improve access to health care in under-served rural communities in Nicaragua and Guatemala.

In Nicaragua, the project achieved the expected results by accomplishing the following:

- increasing the number of health care workers available in vulnerable communities in rural and remote areas;
- improving access to primary health care nursing services;
- improving the knowledge of community health nurses and other frontline health care workers;
- contributing to the development of a HHR regulatory environment which recognizes the role of primary health care nursing.

Education and training, both entry level education and continuing education, was completed for 542 men and women in rural and remote areas of Nicaragua. Much of the education and training was completed using distance learning methodology. Due to the limited technical capacity in relation to the telecommunication system in the country, the initial modality used was the audioconferencing and tele-writer system. During the project and as the telecommunication infrastructure advanced, the teaching modality has progressed to an on-line, web-based delivery system. As a result of the education provided, 373,577 people in rural and remote areas have improved access to primary health care nursing services.
Appendix A

Gender Content

The concepts of gender and culture-specific care were incorporated in the curriculum. These concepts are presented as “curriculum threads” in all modules. This indicates that in all applicable areas of the curriculum, gender and culture-specific content is included.

 Teachers provided information on the topics listed below and students incorporated this knowledge in the nursing care they provided. The curricula of the programs address concepts surrounding: maternal child health; respect; reproductive health including contraception; violence; health promotion; and disease prevention.

Examples included but are not limited to the following:

1) Assessment, planning and delivery of nursing care based on the principles of quality, sensitivity, fairness and equality amongst men and women.

2) Assessment of the characteristics of a mentally healthy family.

3) Discussions regarding power relationships within families and the influence of these relationships on health.

4) Assessment of culture and environmental factors that impact decision making processes and participation in women’s health care.

5) Teaching regarding preventative education for women and children.

6) Awareness and education to raise social consciousness in family violence.

7) Assessment of risk factors for mothers in the community to develop health actions based on health situation.

8) Personal reflection of power balances.

9) Review of attitudes with a goal to modify those that are barriers in the opportunity to grow as men and women.
Appendix B

Mid-Term Evaluation
Actions Taken – Results Achieved

In September 2007, CIDA representatives visited the CNS to discuss the recommendations as outlined in the midterm evaluation report. CIDA and CNS determined which of these recommendations were relevant in the project context and agreed on the follow-up to be implemented in the final stages of the project. These recommendations were included in the work plan submitted and implemented for 2007-2008 and in the work plan of the project extension (June to December, 2008). A summary of the recommendations and the follow-up to these recommendations is provided in the table below.

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<tr>
<th>Recommendations</th>
<th>Results achieved in relation to recommendations</th>
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<tr>
<td><strong>Recommendation #1</strong>&lt;br&gt;Revise the Logical Framework Analysis.</td>
<td>The Logical Framework Analysis was revised November 2007 and subsequently approved by the project steering committees. The monitoring instruments were revised. As necessary, information was incorporated into the LFA.</td>
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<td><strong>Identify assessment criteria for selection of tutors and preceptors; identification and integration of tutoring and preceptor learning needs into the orientation plan and in follow-up.</strong></td>
<td>CNS completed a review of the information used in the selection of tutors and preceptors. Following the assessment, the following were produced in collaboration with UPOLI:&lt;br&gt;1) Preceptor-Tutor Manuel&lt;br&gt;2) Preceptor-Tutor Orientation Guidelines&lt;br&gt;3) Guidelines for Instructional Methods&lt;br&gt;4) Teaching-Learning Information&lt;br&gt;5) Assessment Criteria for the Selection of Tutors and Preceptors&lt;br&gt;6) Critical-Thinking Exercises (samples)&lt;br&gt;The above documents were reviewed, discussed, and finalized together with faculty from UPOLI and 2 CNS nursing faculty in the June 2008 mission.</td>
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<td><strong>Review and revision of student assessment instruments for classroom and practicum sites with corresponding preceptor and tutor training on use.</strong></td>
<td>CNS completed an assessment of the evaluation tools used by teachers and preceptors in both the theoretical and clinical components of the auxiliary nursing course. Subsequent discussion regarding evaluation tools occurred during the CNS faculty mission in June 2008. The tools used at UPOLI were determined to be satisfactory and met the parameters of effective evaluative tools.</td>
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| **Promoting Primary Health Care in Central America**  
| **Final Report – Nicaragua**  
| **March 2009** |

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<th>Development of new evaluation tools was not required. Educator training in the area of student assessment and evaluation was completed in the June 2008 mission.</th>
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| Develop and implement a systematic plan for graduate follow-up and identification of information requirements for comprehensive baseline data, including parties responsible for data collection and analysis. |
| CNS consulted with the ministry personnel and UPOLI regarding tracking of the current employment status of graduates and subsequent data sources. What was important to our partners in Nicaragua was to have information regarding the employment status of graduates as well as their contribution to their communities. UPOLI went through a process to determine the employment status of the graduates and the opinion of doctors and managers in the workplace about the graduate’s contribution. This was also a component of the systematization process. UPOLI has developed a plan for the creation of a data base and ongoing follow-up of graduates. This is assumed as a responsibility of the nursing school. In addition, four program evaluation tools were shared with the faculty of UPOLI. The suggested administration times of these surveys is indicated in brackets. 1. Preceptor/tutor survey (Administered at end of the experience) 2. Student exit survey (Administered at graduation) 3. Employer survey (Administered at specific intervals following graduate employment in the workplace) 4. Graduate survey (Administered one year following completion of the program) The preceptor survey and the student exit survey were reviewed and revised for applicability to the unique circumstances in Nicaragua and were administered at the completion of the last auxiliary nursing course. To administer these surveys, guidelines for survey administration as used in Canada were discussed in June 2008 (for example: level of readability, confidentiality). |

| Review curriculum and modular content from a gender and community perspective ... |
| Specific results in the gender component were compiled. Data on the gender of the students and beneficiaries was compiled. The components in the education program that refer directly to the health of women and children were determined. A workshop focusing on gender was held in Nicaragua. The objectives and content of the workshop was reviewed by the CIDA gender specialist (See Appendix D). The preceptor manual was reviewed by a gender specialist to |
| **determine if additional gender specific content was applicable.**<br>The curriculum was reviewed to ensure that it was responding to both a gender and community perspective. The curriculum will be reviewed again prior to the delivery of the next course.<br>The “Diploma Course” was developed from a gender and community perspective. These were included as “curriculum threads” in the curriculum development. |<br>--- |
| **Organize educator training in popular education methods and dynamics in order to begin the process of broadening the range of teaching / learning methods for incorporation into educational program.**<br>An assessment of teaching/learning methodologies was completed. The need to diversity teaching-learning tools was a topic addressed in the June 2008 mission (see appendix E). During this mission, to support diversity in teaching methods used, CNS developed and reviewed with partner’s information regarding teaching-learning strategies (documents listed previously). Additionally, a sample of critical thinking exercises and typical testing questions were developed and shared.<br>Additionally, to further diversify teaching/learning methodologies, PDCS provided a workshop that resulted in increased capacity to diversify learning tools to complement that technology utilized (See Appendix F). |<br>--- |
| **Determine the average cost per student for the distance education program.**<br>Our goal was to provide the School of Nursing at the Universidad Politécnica de Nicaragua (UPOLI) with data indicating the cost to deliver the education program.<br>Following discussion with UPOLI and MINSA, it was determine that the critical component of the financial aspect was complete information on the cost incurred to implement this program in Nicaragua. A complete report outlining the specific program costs was provided.<br>Additionally, in Nicaragua the process for financial management was changed so that the responsibility was given to the director of the school of nursing at UPOLI rather than with the in-country project coordinator.<br>In addition, UPOLI has completed an assessment to determine the cost to provide education by distance to remote areas of the country in comparison to the cost to provide similar education in the classroom. |<br>--- |
| **Assessment of classroom environment and the quality of audio and graphic transmission.**<br>An assessment of the classroom environment in relation to extraneous noise and interruptions was completed. |
The learning environment in the classrooms is a question that goes beyond the project itself. The best space available in the community and/or health centre was given to the students.

CNS raised this question with UPOLI and MINSA to make them aware of the importance of maximizing the quality of the students learning environment. Additionally, this information was discussed and stressed in the mission completed in June 2008. CNS and UPOLI also discussed the value of an enhanced classroom environment and the value of classroom learning resources for student and tutor use. Funding was provided to obtain a limited number of classroom resources to enhance the classroom environment. To ensure that preceptors are aware of the importance of avoiding extraneous noises and interruptions in the classroom, information regarding the quality of the learning environment was included in the preceptor manual.

From a technical perspective, the PDCS technical personnel assessed the quality of the audio and telewriter components during the mission to complete the ICT Strategy report. The quality of these components was determined to be satisfactory. Since the platform for delivery of the education has advanced to an on-line methodology, this concern will be much less in subsequent courses.

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<th>In collaboration with the Nicaraguan Ministry of Health (MINSA), determine plan and budget for completion of the nursing online site and its subsequent maintenance.</th>
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<td>CNS explored with the Nicaraguan Ministry of Health (MINSA) strategies for maintenance of the nursing on-line site. The website is incorporated within the MINSA website. Evidence of updating is apparent. <a href="http://www.minsa.gob.ni/mc/index.php">http://www.minsa.gob.ni/mc/index.php</a></td>
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**Recommendation #2:**

Require complete disclosure of all funding supplementation so that an accurate complete costing of the program can be determined for each geographic area of the Project...

The 2007-2008 work plan was developed with consideration to sustainability of the project. The work plan was approved by CIDA and all the activities outlined were implemented.

All information regarding funding supplementation was provided to CIDA. There was no Tula contribution to the Nicaragua component of the project after April, 2008.

**Recommendation #3:**

... determine the best alternatives for transition to internet based service and under what conditions, and design likely strategy scenarios for later

Since the beginning of project, the choice was not between distance education and school based education in the communities where the courses have been offered. Rather, it was between distance education or no education because of the difficulty for the remote areas covered by the project...
consideration… access any education program.

The priority in relation to sustainability was to assess the initial technology and to make recommendations on possible upgrading options to improve the learning of the students.

In March-April 2008, an ICT strategy for Nicaragua was developed by PDCS. This strategy was shared with our partners and will serve as a guiding framework for them for the next 5 years.

Based on the ICT strategy, during the extension timeframe, the technological component was advanced to on-line teaching using the technical platform of Elluminate Live.

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<th>Recommendation #4:</th>
<th>…ensure project sustainability …</th>
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<td>In January 2008, the CNS developed an extension proposal, in collaboration with UPOLI and MINSA, which focused on sustainability and to facilitate project transfer and ownership to local authorities. The additional time and budget was approved in June 2008. Following this, a work plan was developed and approved by CIDA and the PSC. All activities outlined in the work plan were implemented.</td>
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Appendix C
Minutes Project Steering Committee, February, 2009.
See attached file.

Appendix D
Agenda Gender Workshop, November, 2008
See attached file.

Appendix E
Agenda, Teaching Workshop, June 2008.
See attached file.

Appendix F
Agenda, Workshop by PDCS, September, 2008.
See attached file.

Appendix G
Systematization Document – Auxiliary Nursing Program, Nicaragua.
See attached file.

Appendix H
Systematization Document – Community Diploma Program, Nicaragua.
See attached file.