INTRODUCTION

Successive Governments in Ghana from the pre-independence era till today have all emphasized the importance of formal education as a catalyst to rapid national development. Hence, the colonial government placed a premium on education, especially, technical education. This explains the establishment of technical institutes in the 1950s to train the needed technicians and technologists for the accelerated development of the country. It is worthy to note that to meet the needs of the rapidly expanding railway lines and mining activities in Ghana, technical institutes were established in Accra, Takoradi and Kumasi.

In 1963, the Accra, Takoradi and Kumasi Technical Institutes were re-designated as Polytechnics without any legal backing. Two others at Tamale and Ho enjoyed the polytechnic status in 1984 and 1986 respectively. Cape Coast Polytechnic which was planned as a Polytechnic from inception was opened in 1986 (Nsiah-Gyabaah, 2005). These six second-cycle Polytechnics were elevated to tertiary status under the Polytechnic Law of 1992, without any upgrading in terms of facilities or staff. Later, in 1997, Sunyani and Koforidua Technical Institutes became Polytechnics and enjoyed similar tertiary status. The establishment of Bolgatanga and Wa Polytechnics (in 1999 and 2000 respectively) ensured that there is a Polytechnic in each on the ten administrative regions of Ghana.

MANDATE

The Polytechnic Law (PNDCL 321 of 1992) has since 2007 been replaced by the Polytechnics Law (Act 745). This gives a clear mandate to the Polytechnics when it states their aims and objectives as the following:

a) provide tertiary education in the fields of manufacturing, commerce, science, technology, applied social sciences and applied arts, etc; and
b) provide opportunities for skills development, applied research and publication of research findings.

The above clearly indicates that the central focus of Polytechnic education is its career-oriented nature. Rather than be a strength, this career-oriented focus of Polytechnic education has been largely responsible for several agitations of both staff and students in the past.

**CHALLENGES**

As tertiary institutions, Polytechnics have had to face a myriad of challenges in the last decade. These include:

1. **Poor Funding:** The Polytechnics were upgraded into tertiary institutions without the necessary funding and other resources. For example, Government expenditure per Polytechnic student in 1990 was US$ 168 as compared to US$ 2100 per University student. This actually fell to US$ 74 per Polytechnic student by 1998 during which time that of the University student fell to US$ 900. By 2005, the situation had improved to about US$1000 per polytechnic student as against US$ 2500 per university student. This is as a result of the establishment of the Ghana Education Trust Fund (GETFund). Another window of funding for Polytechnics recently has been the Teaching and Learning Innovation Fund (TALIF).

A large portion of government budgetary support for education goes into staff remuneration and administrative costs and barely on investments. There is very little financial support for research activities generally. A recent study found that as low as between 0.3% to 0.5% of Ghana’s GDP is available for research activities whereas the US and Japan allot about 2.8% of their GDP to research activities. Similarly, South Korea and Hungary allot about 1.9% and 2.7% of GDP respectively to research activities (Aryeetey, 2000).

2. **Staffing:** The Polytechnics faced serious staffing problems when they were upgraded from second cycle institutions to being tertiary institutions. Inadequate qualified and professional staffing presented problems for teaching, learning and research. However, by pragmatic staff development programmes, the Polytechnics have been able to upgrade the qualifications of most of the staff. At the moment, there are several staff members on study leave in institutions both home and abroad. The situation is improving but there is still room for further improvement.
At the beginning of the Polytechnic upgrading exercise in 1993/94 academic year, only 2% of the academic staff had postgraduate qualifications but by 2002, the number had risen to 28% (Afeti, 2004). The various categories of teaching staff in 2002/2003 and 2006/2007 were as shown in Tables 1 and 2 below.

Table 1: Academic Staff of Polytechnics in Ghana by Category, 2002/2003

<table>
<thead>
<tr>
<th>Staff Category/Programmes</th>
<th>Principal/Senior Lecturer</th>
<th>Lecturer/Principal Instructor</th>
<th>Senior Instructor/Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>0.3%</td>
<td>35.5%</td>
<td>64.2%</td>
</tr>
<tr>
<td>Applied Science</td>
<td>0.6%</td>
<td>40.4%</td>
<td>59.0%</td>
</tr>
<tr>
<td>Management/Business</td>
<td>0.5%</td>
<td>40.4%</td>
<td>54.4%</td>
</tr>
<tr>
<td>% Total</td>
<td>0.4%</td>
<td>39.8%</td>
<td>59.8%</td>
</tr>
<tr>
<td>NCTE Norms</td>
<td>20%</td>
<td>50%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Table 2: Full-Time Academic Staff of Polytechnics in Ghana by Category and Gender, 2006/2007

<table>
<thead>
<tr>
<th>INSTITUTION</th>
<th>Principal Lecturer</th>
<th>Senior Lecturer</th>
<th>Lecturer</th>
<th>Asst. Lecturer</th>
<th>Principal Instructor</th>
<th>Senior Instructor</th>
<th>Instructor</th>
<th>Asst. Instructor</th>
<th>GRAND TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>Accra</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>55</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Bolgatanga</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>12</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cape Coast</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>22</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ho</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>36</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Koforidua</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>25</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Kumasi</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>48</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Sunyani</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>39</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Takoradi</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>52</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Tamale</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>31</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Wa</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>17</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>337</td>
<td>49</td>
<td>9</td>
<td>1</td>
<td>77</td>
</tr>
</tbody>
</table>

Source: Adapted from NCTE Statistical Digest (2007)  Lecturers: 41.7% of total staff.

3. **Inadequate Staff/Student Accommodation:** The Polytechnics have faced and continue to face acute accommodation problems for both staff and students. Less than 20% of our students are accommodated in Polytechnic hostels and the rest find accommodation in private hostels around the various institutions. The situation is the same for staff and this militates against the attraction and retention of qualified
staff. We call upon the Government, SSNIT, the Alumni and all well-meaning stakeholders to come to the aid of the institutions in this regard.

4. **Curriculum:** The development of curriculum for all the HND programmes appears to be lagging behind and requires immediate attention to make them relevant and industry-friendly. This is to conform to the current thinking and the vision of the founding fathers that Polytechnic education should be career-oriented with more emphasis on the practical content of the various courses.

5. **Career Progression:** This was in issue that gained national attention a few years ago when Polytechnic graduates agitated for a career pathway. The solution was the introduction of Bachelor of Technology (B-Tech) programmes. However, the stringent approach to accreditation adopted by the authorities has reduced opportunities for career progression for such graduates. Four years down the line, no Polytechnic has been allowed to mount B-Tech programmes in business and the social sciences. The universities, both public and private, have been having a field day in mounting B-Tech top-up programmes for Polytechnic graduates without the requisite practical content in the curriculum. The time has come for the authorities to lift the ‘ban’ and allow Polytechnics with adequate, qualified human and material resources to mount appropriate programmes for the graduates.

6. **Poor Remuneration:** This has been a recurring battle-cry for the staff of the Polytechnics. The issue of poor remuneration has remained the Achilles heel of the Polytechnic staff vis-à-vis their counterparts in analogous institutions. One can only hope that the Single Spine Salary Scheme will be a panacea and solve the problem once and for all.

7. **Autonomy:** The Polytechnics Law, 2007 (Act 745) has granted “academic autonomy” to the Polytechnics as tertiary institutions. The question is how to give meaning to the spirit of the law. It is very unfair to deny all Polytechnics this status under the law since a few of them at present may qualify for full autonomy. I do not believe in the assertion that there must be in place a Legislative Instrument (LI) before the issue of autonomy can be considered. The National Accreditation Board (NAB) has LI 1700 which regulates the granting of Presidential Charter and I want to call for a forum where NCTE, NAB, NABPTEX, COTVET and CORP can chart the way forward.

8. **Industry/Polytechnic Linkages:** The limited collaboration between Polytechnics and industry in Ghana cannot be over-emphasized. Since industry is regarded as a major stakeholder in tertiary education around the globe, its views
should be taken into account in the design and review of the curricular. This would ensure that the programmes run by the institutions are more relevant to the needs of industry and society as a whole.

PROSPECTS AND THE WAY FORWARD

Recent developments in Polytechnic education in Ghana tend to raise hopes of a brighter future. The Report of the Educational Review Committee (2004) also contains several recommendations meant to improve tertiary education as a whole and research in particular. Some of the current issues that point the way forward and those that must be brought on board include the following:

i. **Improved Funding:** There is no doubt that funding is a critical factor to the achievement of organizational objectives. The Report of the Educational Review Committee (2004) admitted that Government’s allocation to the tertiary institutions over the years represents only about 40-60% of their budgetary requirements for effective operations. A large portion of this, between 80-90%, goes into personal emoluments with very little left for teaching and research. The shortfall in funding must be made up, somehow, by the institutions themselves. While calling for increased support from the GETFund for tertiary education, the institutions themselves must recognize that the time has come to be more pragmatic in diversifying their sources of funding. These should include intensive fundraising through direct appeals to industry, philanthropists and the alumni, running community-based short courses, provision of consultancy services and writing project proposals for external funding (as under the Teaching and Learning Innovation Fund (TALIF)). The Students Loans Trust should decentralize its operations and make loans more accessible to applicants.

ii. **Staff Development:** In order to attract, recruit and retain qualified personnel for the tertiary institutions, and especially for polytechnic education, a new and comprehensive motivation package must be designed. This should cover improved conditions of service and include incentives such as enhanced salaries, provision of medical care, accommodation, transport and sponsorship for further studies as well as retirement benefits. It would be a good idea to have lecturers who have served well for a certain number of years to retire on their salaries as it is done in the military and some other professions, both home and abroad.

iii. **Increased Access to Tertiary Education:** Ghana’s rapid population growth and the expansion in pre-tertiary education since the education reforms of 1987 have created a high demand for tertiary education. Although the national policy on enrolment for science/technology to business and related programmes is 60:40,
there is an increasing preference for business education. The ratio in most institutions approaches a 40:60 bias for business and social science education. Government should continue to encourage polytechnic education, especially, at the degree and postgraduate levels (i.e. at the masters’ level and beyond). This will ensure that the much needed higher technical expertise will be available for the rapid development of the nation.

iv. **Introduction of Competency-Based Training:** In Ghana today, one of the key issues of polytechnic and vocational education is the introduction of competency-based training (CBT). While this is not new in the advanced countries like Japan, Germany and the Netherlands, it is a fairly new phenomenon in Ghana. CBT, according to Afeti et.al. (2003), involves “self-directed enquiry” or a do-it-yourself approach. This means that a student will develop his “talents, interests and skills leading to an occupation in various sectors” of the economy (UNESCO/ILO, 2002). The success of any CBT programme depends on:

- New approach to curriculum and teaching materials development;
- Re-orientation of teaching staff;
- Purposeful staff recruitment and development;
- Equipping the training institutions with the basic teaching tools; and
- Instituting a framework for quality assurance (Agodzo and Songsore, 2005).

These initiatives are already being pursued vigorously and may become fully operational by 2012, especially in the Polytechnics in Ghana. It is pertinent to recognize the role of COTVET and NABPTEX and the assistance of the development partners like the Netherlands Organization for International Cooperation in Higher Education (NUFFIC, in Dutch) and the Japan International Cooperation Agency (JICA) in this direction.

v. **Strengthened Linkages with Industry:** Tertiary institutions, globally, are the incubators for new ideas, concepts and inventions while industry provides the vehicle for turning them into need-satisfying products. Collaborations between industry and tertiary institutions provide the platform for accelerated national development through the research activities undertaken in the tertiary institutions. Industry players may be allowed to play active roles in the delivery of the curriculum through seminars, workshops, open days, founder’s days, special lectures, practical demonstrations as master craftsmen, etc.
vi. Inter-Institutional Exchange Programmes: Staff and students must have more opportunities to interact and collaborate with their counterparts in the global arena of tertiary education and research. Recently, Takoradi Polytechnic has played host to some staff and students from the University of Massachusetts in Amherst, USA and the University of Plymouth in UK. Such international exchanges are needed to broaden understanding, infuse ideas, and set a global agenda for tertiary education and research now and for the future.

CONCLUSION
This has been an attempt to draw attention to the challenges of tertiary technical education and polytechnic education in particular in Ghana. Some of these challenges may be peculiar to polytechnics in Ghana. Others reflect on tertiary education in general in Ghana. Government and educational authorities must take into account the impact of technical and vocational education and training in policy formulation for national development. While conceding that some efforts have been made in this direction, we believe that a lot more can be done to reap the benefits of polytechnic and technical education in Ghana in this 21st century.

REFERENCES