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**DEPARTMENTAL COMMITTEE -G- ON EDUCATION,
RESEARCH AND TECHNOLOGY.**

**REPORT ON THE COMMITTEE TOUR OF EDUCATIONAL
INSTITUTIONS IN JAPAN, KOREA AND MALAYSIA**

From Monday 10th May 2004 to Tuesday 21st May 2004

**CLERK CHAMBERS
PARLIAMENT BUILDINGS
NAIROBI**

SEPTEMBER 2004

INTRODUCTION

The Departmental Committee C on Education, Research and Technology undertook a study Tour of educational institutions in the Democratic Republic of Korea, Japan and Malaysia from 10th May 2004 to 21st May 2004 to study the advances made in the delivery of education as well as learn from the advances made in technology and research in these countries. The following were the Members who undertook the tour:

The Hon. Daniel D.Karaba, MP -Chairman.
The Hon. Moffat Maitha, MP
The Hon. Francis Kagwima, MP
The Hon. Raphael Muriungi, MP
The Hon. Joel O. Onyancha, MP
The Hon. Godfrey O. Masanya, MP.
Ms. Phyllis Mirungu – Secretary to the delegation

Mr. Speaker,

I wish to express our appreciation for the support accorded to the delegation by our foreign missions to Japan, and Malaysia as well as the Consulates - General in The Democratic Republic of Korea and the Kingdom of Thailand. On behalf of the delegation, I wish to register our thanks for the dedication to duty portrayed by the High Commissioners, Consulate Generals and their staff in facilitating the programme and also ensuring the safety and comfort of the Members.

I particularly wish to commend the High Commissioner, Tokyo and his staff for the elaborate programme prepared for the Committee and for the support he accorded to the delegation during the period the Committee was in Tokyo and Seoul.

Mr. Speaker, most of the work done by the committee during the tour was actually achieved in Japan and Korea where the Committee was able to visit a public Primary school, a research institute an institute of science and technology and a middle level college. The Members also held talks with the Secretary For Foreign Affairs and held discussions with their counterparts and Members of the Parliamentary Committee on Education, Culture, Sports, Science and Technology.

The Members also visited the Ministries of Education and Agriculture where they held discussions on the broad mandates of the Ministries and pertinent issues of concern to the committee such as retention and motivation of teachers, challenges in the delivery of education and the legislation on Biosafety. The

Members also held discussions with the senior politicians and Members of Japan All Parliamentary League.

I also wish to express our gratitude to the Japanese government for the assistance accorded to the delegation both here in Nairobi and also in Tokyo. While in Tokyo the Committee was assigned an officer who accompanied the delegation throughout their official engagements.

Mr. speaker Sir,

Our appreciation also goes to our High Commissioner, Kuala Lumpur and his officers for organizing a programme that exposed the Members to the state – of the - art technology that marks the learning environment in Malaysia. Members were captivated by the high-tech learning environment in the universities visited and the technological advances made in Malaysia.

Mr. Speaker Sir, while in Malaysia the Committee was able to meet with the Kenyan students learning in universities in Kuala Lumpur, courtesy of the High Commissioner.

Our special gratitude is extended to your office for the support and encouragement the Committee has enjoyed in all its activities. We also wish to thank the Clerk of the National Assembly for facilitating the tour and the production of this Report.

I hereby present the report of the findings of the Committee as well as recommendations on the way forward. I urge the Members to use the findings and the recommendations as a means to helping this country catch up technologically with the rest of the world through research and education.



Hon. Daniel Karaba, MP
Chairman Departmental Committee C on Education, Research and
Technology,
September 2004.

BRIEF SYNOPSIS

The Departmental Committee C on Education, Research and Technology was mandated by the Liaison Committee to travel to Japan. The objectives of the tour were as follows: -

- To find out how governments fund public education to ensure that standards in both public and private schools are at par.
- To find out measures taken by the various governments to bridge the gap between institutions of higher learning and industry/enterprise.
- To find out efforts made by the governments to enhance bio-safety.
- To find out how these governments have managed to employ and retain teaching staff in public learning institutions.
- To find out how technical education is effectively integrated in the learning process.

The committee was able to gather useful information on the above, particularly in Japan where we were able to visit the following public institutions:-

- Tokyo University of Agriculture
- Nodal Research Institute
- Fujimi Elementary School
- Tokyo Electronics College

Along with the visits, the Committee held discussions with the Parliamentary Secretary for Foreign Affairs, the Director General International Affairs Division, Ministry of Education, Culture Sports, Science and Technology and the Members of the Parliamentary Committee on Education Culture, Sports, Science and Technology of the National Assembly chaired by H.E. Yasuko Kenobo.

The committee also held discussions with Japan All Parliamentary League at the LDP headquarters chaired by Dr. Shozaburo Jimi.

From these discussions, the Committee observed that the Japanese government had invested heavily on their education system in terms of resources and equipment and more particularly in research. To ensure hands on management of schools, the management of education has been devolved to metropolitan authorities who supervise the institutions from time to time.

Further, the committee observed that institutions of higher learning have forged partnership with industry/enterprise and that universities have patented their research findings and implemented programme/projects, which are self-sustaining through financial earnings derived from such programmes. This was an observation the committee also made in Korea where the Korea Institute of Science and Technology has patented their research innovations and are in partnership with industry and earn royalties from innovations made by researchers in the institution in which case they supplement the funds allocated by the Government for research.

The Governments of Korea and Japan have technical secondary schools running alongside other schools as well as technical universities, which would absorb the graduates. Their technological advancement could be as a result of specialization in education at that early stage-unlike our system whereby we have abolished technical schools, to the detriment of our economy.

As a country that aims at industrialization by the year 2020, technical education ought to be introduced at secondary school level so as to build a base for middle level technicians who will form the core workforce in industry. Our system of education, unlike that of Korea and Japan is lopsided and has tended to produce more managers than skilled labour force. The Government ought to streamline education policy to clearly address the needs of the Kenyan economy and work towards meeting the specific training needs.

The situation in Malaysia clearly underscores the latter. Over the last decade, Malaysia has seen an upsurge of privately owned technical/IT universities, which are equipped with state-of-the-art information technology in response to the need for skilled IT manpower in the country and in East Asia.

While in Malaysia the committee visited

- Nilai College
- Kuala Lumpur Infrastructure University College and
- Multimedia University, all privately owned.

The most striking phenomenon in all three countries visited is the fact that the Governments are directly involved in the enhancement of human resources. To this end these governments extend loans/grants to both public and private universities alongside loans for individual deserving students. This has not only worked towards bridging the differences in quality in private and public universities, but is also recognition of the role played by these institutions in producing high calibre graduates who will compete in the international job market. Multimedia University for instance works closely with major computer manufacturers who have equipped five computer laboratories in the college and

also absorb the best IT students on graduation. Such partnership ensures that the curriculum offered meets industrial demands – hence relevance of courses offered.

The committee also visited a vocation college namely Japanese Electronics College, which offers courses in the following fields: - IT, Computer Graphics Design, Game, Music and Electronics. According to statistics supplied by the college, job placement rate is as follows: -

- IT 90%
- Computer Graphics Design Field 80%
- Game Field 80%
- Music 55%
- Electronics 100%

The country would gain immensely if our curriculum was reviewed regularly in order to do away with obsolete courses and concentrate efforts in market driven ones.

The committee also sought to find out the status of legislation on Bio-safety in Japan and advances made in Biotechnology. Whereas research efforts made by the university visited compared to research effort by the Kenyan scientists, the biggest challenge lies in ownership of research work. Kenya relies heavily on foreign donations for research work carried out in our research institutions and universities. Such a scenario greatly compromises the research work carried out- Is our research donor driven or needs driven? While Japan has already legislated a law on bio-safety this year, our draft law is yet to be drawn, despite the danger posed by unregulated importation of GMO products into the country.

The lessons learned are numerous and the committee at the end of this report has made recommendations which are meant to assist the country focus on our priorities so as to realign our education policy and also develop a technology policy which is all inclusive and which will drive the country towards realization of the dream of industrialization by the year 2020.

TOUR OF EDUCATION INSTITUTIONS IN JAPAN

THE PARLIAMENT OF JAPAN

The Parliament of Japan came into existence in 1890, consisting of two Houses – the House of Peers and the House of Representatives. During that period, the former house had its Members drawn from the Imperial family, the Peers and people who paid high taxes while the latter House had its Members elected by a limited franchise. The passing of the Election Law in 1925, however, saw the

election of Members of the House of Representatives chosen under the universal adult male suffrage.

A new constitution was promulgated in 1946. As a result, sovereign power is vested with the people while the Emperor is seen as a symbol of the State, deriving his power from the will of the people. The Emperor has no power relating to the Government. The new constitution also replaced the Imperial Diet (parliament) with the National Diet, which functions as the highest organ of State power and the sole law-making organ of the State.

The National Diet is currently composed of two Houses – The House of Representatives and the House of Councillors. The Prime Minister is designated from among the Diet Members by a resolution of the Diet and a majority of the Ministers of State are required to be chosen from among the Diet members. The Cabinet is held collectively responsible in the exercise of executive power. If the House of Representatives passes a vote of no confidence, the Cabinet is required to resign en bloc or the House is dissolved.

ELECTION OF DIET MEMBERS

Members of both Houses are elected by universal suffrage though their qualifications and constituency differ. The Membership of the House of Representatives is 480, for a four-year term while the House of Councillors has 247 Members, half of whom are elected every third year for a six-year term.

Out of 480 Members of the House of Representatives, 300 are elected from single seat constituencies while the other 180 are drawn from 11 electoral blocs (whose membership ranges from six to thirty depending on the size). This therefore means that voters cast two ballots – one for individual candidate and another one for a political party (for proportional representation election). The minimum age of voters is 20 while a candidate for election must be 25.

In the House of councillors, 98 Members are elected by proportional representation while the remaining 149 are elected in 47 prefectural constituencies, each returning two to eight Members. The minimum age requirement for candidature is 30. Furthermore while the House of Representatives can be dissolved, the House of Councillors is not subject to dissolution.

Committees

There are two types of Committees, namely Standing committees and Special Committees;

(a) Standing Committees

The House of Representatives has 17 Standing committees with a membership of 20 – 50 Members while the House of Councillors has a similar number but membership is between 10 – 45 members. Every member is supposed to serve in at least one standing committee. Committee members are nominated by the Speaker or the President of the House to which they belong and hold their membership, until their term of office as Members of the Diet expires. Membership in these committees is based on numerical strength of political parties in the House.

(b) Special Committees

These committees are set up in order to consider matters which are deemed necessary by the House and which do not fall under the jurisdiction of any standing committee. Appointment to these committees is based on proportional representation. Members serve until the matters referred to the committee are decided upon by the House.

Quorum in committees is constituted by half the membership and committee proceedings are held in camera.

EDUCATION - GENERAL REMARKS

The Parliament of Japan enacted the Fundamental Law of Education in 1947 to address emerging issues in education. The law accords equal opportunity to all learners in the learning environment and also gave access to all children pursuing basic education by making provision for compulsory free basic education. This law forms the basis for all education related laws. The law seeks to help encourage learners to be independent minded who are warm hearted and enjoy physical well-being as well as helping learners become creative leaders in a world of great technological advancements. The law further seeks to develop learners who are civic minded and at the same time appreciating their traditions and culture in a globalized world. As a result, special educational activities are now compulsory while ability grouping of pupils like streaming is outlawed in Japanese schools. A heavy responsibility is placed on schools to teach fundamental etiquettes and manners, moral education and discipline.

Teachers are also expected to be responsible for their pupils even after school hours, outside of school.

The Government of Japan has invested heavily in education and budgetary allocation accounts for 5% of the annual national income. Teachers are also highly motivated to remain in position and enjoy high social status and also earn 10% higher than other public servants.

There are a total of about 62,545 learning institutions catering for 20,972,428 pupils/students with a teaching force of 1,320,257 including private school teachers. However, there are over a million teachers in public schools. Correspondence courses are offered in 128 institutions with a capacity of 192,092 students and 2,632 full time teachers.

In terms of school facilities, the Government, through the Ministry of Education and Human Resources Development, provides half the cost of new and additional buildings, a third of the cost of reconstruction and alterations; promotion of university learning through sponsorship of projects and interest-aid programmes in both public and private universities. A corporation has been set up to look into the funding of the latter. Great emphasis is also laid on education of the children with special learning needs through the establishment of special schools and special classes in ordinary schools as well as provision of resource rooms for specific disabilities. Further, the textbooks used at national, public and private schools are given free of charge. In order to achieve the objective of building knowledgeable leaders the Government plans to provide computers and internet facilities to all schools by the year 2005.

Along with promotion of formal education the government has also encouraged lifelong learning in response to social and economic change. A large proportion of mature population is affluent-with rising income levels and therefore expanding leisure time-necessitating avenues for spiritual enrichment and self-actualization. There has been a deliberate shift therefore, from the glorification of academic credentials to giving recognition to learning at all stages in life.

FORMAL EDUCATION

Formal education in Japan began in 1872. The current education system of 6-3-3-4 however came into force after the enactment of the Fundamental Law of Education in 1948, which provides for 6 years compulsory elementary school, 3 years compulsory lower secondary school and 4 years higher education.

Higher Education comprises universities, junior colleges of technology and specialized training colleges. Universities offer 4-year degree programmes with the

exception of medicine courses, which take 6 years. Many of these institutions have opened graduate schools which award degree certificates. 50 % of high school graduates join universities, junior colleges and colleges of technology while 21.7% join specialized training colleges.

Junior colleges offer courses, which aim at developing abilities/skills for employment and daily life. They award associate certificate. Colleges of technology on the other hand offer skills for employment to graduates of lower secondary school. The courses take 5 years and associate certificate is awarded on completion.

TOKYO UNIVERSITY OF AGRICULTURE

NODAI RESEARCH INSTITUTE

Nodai Research Centre was established by Tokyo university of Agriculture as a center for international scientific cooperation with South East Asian countries to enable the university undertake studies in various agricultural fields in order to activate research in these areas and also channel their findings for implementation/use by the communities around the institute.

The institute identifies subjects which are problematic and demand attention by scientists and endeavours to find scientific solutions through joint research with various enterprises and the community around it. The institute also undertakes consultancies on various matters under its purview and also holds special lectures to disseminate results of their research findings.

During the visit, the Members toured the Recycle Research Centre where systems were already developed and in operation :

- Recycling garbage into organic fertilizer
- Methane fermentation of organic garbage with zero-residue
- Turning wood waste to soil utilizing it as pavement material

System of Recycling Garbage into organic fertilizer.

The center has developed a large-scale recycling system aimed at zero emission, which turns garbage collected in the local schools, hotels, departmental stores in the locality into fertilizer pellets.. The system in place at the institute has a processing capacity of 80 kilogrammes per hour .The special characteristics of the system include the following:

- the garbage does not undergo composting and is processed directly

- the fertilizer is processed into pellets making its application in agriculture much easier,
- the fertilizer so produced reduces nitric acid pollution of ground water
- it represents industry-government-academia co-operation in promotion of the establishment of a zero-emission society.

Methane Fermentation of Garbage with Zero-residue

The university has developed this system which, unlike others which have been developed, leaves no residue. This system is unique in that;

- Decomposition rate is enhanced by solubilizing raw garbage with aerobic and anaerobic microbes. This helps minimize secondary waste such as sewage.
- Organic matter using this process can be recycled into heat and electric energy through high speed methane fermentation treatment;
- Nitrogen and phosphorous are used in their natural form as fluid fertilizer for hydroponic cultivation.

System of turning wood waste into soil.

A processing system has been developed which converts wood waste to soil but is first utilized as a pavement material, such as garden path. This system promotes decomposition of shredded branches and leaves by micro organisms and the wood waste is turned to soil in approximately 5 years.

JAPAN ELECTRONICS COLLEGE

This is a vocational college whose aim is to develop specific skills for career or everyday life. Vocational education also aims at advancing general education.. The college offers education in three broad categories;

- career oriented education
- acquisition of practical and specialized knowledge and skills
- liberal arts education

The range of vocational courses offered is broad and caters for almost all job skills available in Japan. As such the college aims at not only turning its students into high level professionals, but also equipping them with such qualifications as

are necessary to perform a particular job for example, giving licenses in electrical engineering, car mechanic, medical practice, hair dressing, and the like.

Admission in the college is open for persons with a high school diploma or equivalent certificate for local applicants while a foreign student will be required to have had more than 12 years of school education.

The length of courses varies from one to four years depending on the professional level desired by the students. A graduate of the college who has attained a Technical Associate Certificate or Diploma can easily transfer to university.

The college offers the following subjects;

- Information Technology- Computer Network, Information processing
- Computer Graphics Design – design and animation
- Game Field – game programming and design
- Music – live event and computer music course
- Electronics- applied electronics, toy design and engineering

Besides these basic courses, the college offer other 23 courses that are chosen by students and taken concurrently.

LIVING MODIFIED ORGANISMS (L.M.O)

The Government of Japan has enacted a law concerning the Conservation and Sustainable Use of Biological Diversity through Regulations on the Use of Living Modified Organism. In brief, the law addresses the following issues:

1. Purpose of Law

For the conservation and sustainable use of biological diversity in cooperation with other nations, the Law aims to secure precise and smooth implementation of the Cartagena Protocol by taking measures to regulate the use of living modified organisms.

2. Announcement of Basic Matters

The competent ministers publicly announce basic matters for precise and smooth implementation of the Protocol.

3. Procedure of Type 1 Use (the Use of living modified organisms without preventive measures against their dispersal into environment)

A person who creates or imports and makes Type 1 Use of living modified organisms or other persons who wish to make Type 1 Use must submit Type 1 Use Regulations and obtain the approval of the competent minister. Nevertheless, this does not apply to the Use in accordance with approved Type 1 Use Regulations.

To an application to the approval, a Biological Diversity Risk Assessment Report needs to be attached.

The competent minister publicly announces approved Type 1 Use Regulations.

“ A person who wishes to export living modified organisms from a foreign country to Japan may apply for approval of Type 1 Use Regulations.”

4. Procedure of Type 2 Use (the use of living modified organisms while taking preventive measures against their dispersal into environment)
A person who wishes to make Type 2 Use of living modified organisms must,
 - A. in case containment measures to be taken are stipulated by the ordinance of the competent ministries, take the said containment measures; and
 - B. in case containment measures to be taken are not stipulated, take containment measures previously confirmed by the competent minister.
5. Testing of Living Organisms to be Imported
A person who wishes to import must notify the competent minister. The competent minister may order the person who has notified to undergo testing by the competent minister or a person registered by the competent minister.
6. Provision of Information.
Whenever necessary to ensure that the Type 1 Use of living modified organisms of which Type 1 Use Regulations have been approved is made correctly, the competent minister stipulates “ Information on Correct Use” to be provided to a transferee.
When living modified organisms are transferred, necessary information has to be provided.
7. Procedure of Export
A person who wishes to export living modified organisms must notify the importing country.
It is stipulated that living modified organisms must not be exported unless the contents of the Use are indicated.
8. Other Matters
The competent minister receives necessary reports, orders to conduct on-site inspection, and issues action orders, as required.
Penal clauses and interim measures are stipulated as required.
The competent ministers are the Minister of Finance, the Minister of Education, Culture, Sports, Science and Technology, the Minister of Health, Labour and Welfare, the Minister of Agriculture, Forestry and Fisheries, the Minister of Economy, Trade and Industry, and the Minister of the Environment.

FUJIMI ELEMENTARY SCHOOL

The Committee toured Fujimi Elementary school in Tokyo. The Deputy Principal took the Members round the school. This is a public school under the management of Tokyo municipality. The Committee observed that among other things the school has several special facilities/ rooms to enhance learning such as library, science, music, drawing and handicrafts, home making, computer room, student council room, lunch room etc. In addition to this, there is the Principal's office, staff room, school office, reception room as well as the nurses room. Other facilities include a swimming pool, two play grounds-roof and ground and an auditorium/ gymnasium.

The school has a staff of 36 and a student population of 432, with a teacher pupil ratio of 1:24 (with the exception of Principal and Deputy Principal.)

The school offers basic education-1st grade to 6th grade, teaching the following subjects as stipulated in the curriculum-Japanese language, Social studies, Arithmetic, Science, Life Environment studies, (for grade 1 and 2), Music, Drawing and Handicrafts, Home Making, Physical Education, Moral Education, special activities and comprehensive study time for grades 3-6.

ORGANISATION OF THE SCHOOL

The school is managed by a Principal who is assisted by Vice principal. The principal also has an office manager and office assistant to assist in administrative matters. For efficient running of the school, there are established departments namely, instruction division, Guidance division, School Affairs division, Accounts division and Liaison division. The Parents Teachers Association is also consulted in the school management.

As it is a policy of the Government to provide lunches in the school, a dietician is provided to ensure that pupils eat balanced meals. Five cooks have also been employed.

The school compares relatively with Public Council schools in Nairobi in terms of infrastructure/physical facilities. Local schools however lack modern learning aids such as computers, overhead screens and well-equipped Music laboratories for instance. While class size in Kenyan public schools could be as high as 100 in the lower classes, Fujimi School had an average of 32 pupils per class. School feeding programme lunch is also available in few schools in Nairobi though unlike the case in Japan, parents have to bear the cost of meals and also employ the workers to do that job. Further, our schools lack officers like dieticians, office

managers, janitors, nurses etc. If these latter officers were provided, it would greatly improve the management and raise academic performance, as the teachers will concentrate on academics and delegate administrative issues to the officers provided by the local councils.

There is also need for our curriculum to address issues of morality and environment conservation in order to develop pupils who are conscious of their role in society and thereby help curb deviant behaviour at an early stage. The teaching of these subjects in Japanese schools has helped create pupils who have a social obligation to each other.

Streaming of pupils in terms of ability or ability grouping is not allowed in Japanese education system as it is seen to be discriminatory. All pupils are accorded equal opportunity in the learning environment. The pupils are encouraged to interact with each other through 'hans' (groups). Pupils work in hans to accomplish various sets of activities in and outside class. This has helped develop an attitude of cooperation/ oneness amongst the pupils, an attitude which is later reflected by the Japanese people later in life.

In the Kenyan context however, ability streaming is common largely due to the large numbers of classes being handled by teachers.

KOREA

KOREA INSTITUTE OF SCIENCE AND TECHNOLOGY

The Committee toured the Korea Institute of Science and Technology and held discussions with the President of the institute, Dr. Youseng Kim and Senior Members of staff.

Dr. Kim informed the Members that two institutes namely Korea Institute of Science and Technology and Korea Advanced Institute were merged in February 1996 to form the present day institute.

The Institute has 419 PhD holders, 20 technical staff, 54 administrators and 161 technicians. Currently the institute has 55 foreign scientists, 688 students and trainees and 238 commissioned researchers.

The Committee was further informed that the institute inaugurated Korea Institute of Research Development Agency to assist promising foreign Scientists

and engineers in the areas of research and also help build human resources through training and education of prospective Scientists and engineers from the rest of the world. The main emphasis of this project is to help in transferring the accumulated scientific experiences of the Koreans to other countries and to further work towards commercialization of innovative technologies. Currently the institute has attracted students from Vietnam, China, Russia, Thailand, India, Bangladesh, Malaysia, Nepal etc.

The President further extended an invitation to outstanding students from Kenya to send in applications for consideration to join the programme. He further stated that no tuition fee is charged for the programmes which lead to MSc and PhD. Both courses take 2 years and 3-4 years respectively.

The scope of study is in material Science and Technology, Systems technology, Environment and Process Technology and Life Sciences.

ORGANISATION OF THE INSTITUTION.

The institute is structured into various research divisions:

- (i) Future Technology Research Division
The division studies advancements in nano devices by developing spintronic technology, intelligent micro-systems, bio-chip technology and clean water technology through cooperation of gross functional research.
- (ii) Materials Science and Technology Division.
The division focuses on nano material fields i.e. nano powders, new materials or films and advanced materials for electronic and information devices in ceramics, metals and polymers and composites.
- (iii) Systems Technology Division
The major focus of the division is in the field of lifetronics such as human computer interaction Microsystems as well as the next generation optical technology. Currently research is undertaken in robotics, photonics, imaging and intelligent systems control.
- (iv) Environment and Process Technology Division.
The main concern of the division is to develop environmental monitoring management and control technologies and the next generation energy systems based on fuel cells and batteries. They also undertake integrated research capabilities in environmental and chemical process engineering. The division also undertakes research on biologically active novel compounds via chemo- information,

validation of drug targets, drugs delivery system, tissue engineering through information technology and biotechnology based in silico technology. Areas of research include: -

- New therapeutics and diagnostics
- Pharmacology and metabolism of chemicals
- Toxicology
- Biomedical materials
- Environmental related materials
- Genetics
- Doping.

Courtesy call on the Deputy Minister for Education and Human Resource Development.

The committee thereafter paid a courtesy call on the Vice Minister for Education and Human Resources Development, Korea, Mr. Suh Bumsuk. He welcomed the delegation to Korea and thereafter gave a synopsis of the educational system in Korea.

He informed the committee that the Ministry is charged with formulation and implementation of policy related to academic activities, Sciences and Public education. Functions of the Ministry include the following:-

- Planning and coordination of educational policies.
- Publishing and approval of textbooks
- Administrative and financial support to all schools.
- Supporting local education agencies and national universities
- Lifelong education.

He further informed the Committee that following the passing of the Local Autonomy Law by Parliament in 1991; the Ministry delegated some functions like budget planning and Administration of schools to local Authorities.

EDUCATION – GENERAL REMARKS

The education budget receives the highest allocation in comparison to other Government Ministries. In 2003 it was allocated 22.53 trillion won which is 19% of total Korean budget.

The central Government budget caters for accommodation/ offices, subsidies to universities and research institutions. Elementary, middle and high schools are under the control of metropolitan entities.

The Government offers free elementary and middle school education and has therefore made it compulsory.

The Government has encouraged the establishment of private institutions and has enacted a law exempting private institutions from taxation in the sale and acquisition of properties. The Government also offers subsidies to these schools and extends loans for expansion of facilities and renovations. Research grants, scholarships and annuities are also extended to them.

The ministry has adopted the 6: 3:3:4 system of education i.e.

- 6 years –elementary
- 3 years-middle school
- 3 years-high school
- 4 years-university.

There are about 4,138,000 pupils enrolled in Elementary school. This figure translated to an enrollment rate of 98.5%. The Government earlier on faced several hurdles especially in urban schools where classrooms were crowded and thus necessitated a double shift system. Thereafter in 1982, the Government introduced an education tax to finance expansion and modernization of physical facilities and teachers' socio-economic status. Consequently overcrowded schools were divided into smaller ones and a teacher pupil ratio of 1:34.9 was achieved.

SECONDARY EDUCATION.

Enrolment rate in middle schools is estimated to be over 99% and is offered free since 1985 in farming and fishing areas of the country and has expanded nation wide to date.

High school education is however not free. Selection to join vocational high school is usually through an entrance examination achievement while those wishing to join general high schools are assigned to schools in their residential districts. The enrolment in high school in the year 2002 stood at 99.5%

HIGHER EDUCATION

There are seven categories of institutions of higher education: -

- Colleges and universities
- Industrial universities
- Universities of Education
- Junior colleges

- Air and Correspondence University
- Technical colleges
- Miscellaneous institutions.

For effective management and coordination of university education, the Government set up the Korean Council for University Education whose membership comprises the presidents of universities. This acts as a forum for autonomous discussions on the matters concerning the institutions. Currently the status of universities is as follows:-

Universities	–	169	(National universities - 26)
University of Education	–	11	(All national)
Industrial	–	19	(National - 8)
Others	–	4	
Total		203	

Universities in Korea cut across various disciplines ranging from Science and Technology, Police University, Armed Forces University, University of Arts, Nursing Academy to University of Cultural Heritage. The purpose of such specialization is to raise excellence through diversification and specialization of University Education. Further, the Government funds all research activities in Universities and accredited research organizations.

JUNIOR COLLEGES

There are 158 Junior Colleges with an enrolment of 484,889 students. These colleges are specifically meant to train middle-level technicians. A certain proportion of vacancies is reserved for worker students and graduates of vocational high schools. Emphasis is mainly on teaching instructions in professional courses in line with demand by industrial entities. The curriculum taught therefore is industry driven and is continuously changed to accommodate industrial/ market needs.

Graduates from these colleges access jobs much more easily than university graduates. Studies undertaken by the Ministry indicate that the employment rate of college graduates is 80%.

SPECIAL EDUCATION

According to the statistics from the Ministry, there are 137 special schools catering for 24192 students/pupils who are severely handicapped. Children with lesser impediments, totaling to about 26,868 have special classes

conducted specifically for them. Others attend special classes that are incorporated in the regular schools. Teachers are drawn from five national universities as well as three graduate schools which offer Special Education.

EDUCATION IN THE INFORMATION AGE

The Government has invested heavily in enhancement of computer education. To date 2.746 trillion won has been spent on the construction of physical infrastructure and upgrading facilities for information education/learning. The Ministry has concentrated mainly in the distribution of hardware to learning institutions/schools as well as construction of computer network. In the year 2000 for instance the government undertook to construct one computer laboratory for schools with 36 classes and two computer laboratories for schools with over 36 classes. A total of 10,064 laboratories were built. Furthermore, 34,000 personal computers were distributed to all teachers. The Ministry aims at reaching the level of advanced countries where a personal computer is used by five students/pupils.

Multimedia devices and Internet facility has been accessed to all schools along with multimedia data hardware like computer, projection TV, beam projectors and screen monitors.

The Ministry has successfully concluded the completion of intra-school computer networks in elementary, middle and high schools (in the year 2000). April 2001 saw the completion of ultra-network to the national information super highway at a cost of 327 billion won. To date all schools access Internet communication. The next phase of the programme is increasing the Internet communication speed to 2mbps by the year 2005.

MALAYSIA

MULTI MEDIA UNIVERSITY

The Committee toured the Multimedia University Cyber Jaya Campus. The institution was the first private university in the country and was established in 1996. It is a self-sustaining university and a subsidiary of Telkom Corporation of Malaysia. The university runs two campuses - one in Melaka (150 Kilometres from Kuala Lumpur) and the other at the Cyber Jaya.

The two campuses have a total of 8,000 students each. The university is a research-based university and aims at supplying knowledge workers to the job market. As such the following subjects are taught:

- Engineering
- Information Technology

- Creative multi media
- Management

The university has developed a smart card and a multimedia learning system which is convenient, cost effective with consistent content, media rich, repeatable and makes it easier for lecturers to monitor progress of their students. The smart card has a centralized database and can be used as a medical card, ATM, University applications such as key, telephone for public transportation etc.

The university is working on a Networked Multimedia Education System (NMES) whereby lectures between all sites can be shared through the NMES satellite network.

The Committee toured the Laboratories that have been developed through Joint partnership with a few computer-manufacturing companies like Microsoft and Sisko.

The computer courses offered are very competitive and according to the instructors 60% of the students secure employment within 2 months and the best ones get jobs before graduation.

The university has also introduced an E-learning campus where students access web-based courses which are delivered via internet-based technologies.

NILAI INTERNATIONAL UNIVERSITY

This is a private university owned by PK Resources Berhad group. It is built on a 105-acre plot and 50 acres have already been developed. The university came into operation in 1996 with a first batch of 98 students. To date 2500 students have graduated from the university.

The university offers Pre-university course Management, Multimedia Technology and Engineering and Hospitality Management. Courses are offered in collaboration with other universities in US, Australia, and UK. Students could therefore complete their degrees in any of the universities with whom there is collaboration as examiners are drawn from these universities.

KUALA LUMPUR INFRASTRUCTURE UNIVERSITY COLLEGE

The university was upgraded in September 2003 from a college of technology to its present day status. It is a privately owned university and aims at providing the basic skills in structures and facilities necessary for the country to move on such as building, transport, water, energy resources and administrative systems.

The university houses five schools namely;

- Engineering Infrastructure
- Business Infrastructure
- Information Technology Infrastructure
- Linguistic Infrastructure and Liberal Studies, and
- Material Science

The university is built on a 100-acre plot and has an enrolment of 1500 students. At present the university awards Certificate and Diplomas. The collaboration established with other universities will make it possible for the institution to award degrees to their students in the near future.

VISIT TO PARLIAMENT OF MALAYSIA

The Committee held a brief meeting with the Minister for Parliamentary affairs and selected Members of Parliament before proceeding to the Speakers Chambers.

MEETING WITH THE SPEAKER.

The Committee paid a courtesy call on the Speaker of the Parliament of Malaysia.

The Speaker emphasized the important role education played in development of Malaysia, thereby necessitating the Government to spend 30% of its annual budget on education. In order to address education matters effectively, there are two ministries dealing with education – Higher Education and Lower Education. He underscored the benefits of education to Malaysia in creating an informed/ educated labour force, in production of a computer, and even an indigenous car using local products.

He further informed the Members that Departmental Committees are non-existent in Malaysian Parliament and issues touching on various Government

departments are dealt with by Parliamentary ad - hoc committees which are formed as need arises.

He informed Members that legislation would mainly be introduced to the House by the Ministers concerned. On introduction, the Lower House would debate it and if approved the same would be then discussed by the upper House from where it would be presented to the King for assent.

Facilities enjoyed by Malaysian MPs include computers, offices, telephone, and traveling business on official trips, free accommodation and meals.

The Speaker also lauded Kenya for the peaceful transition of power in 2002 and appealed to Members to work together to ensure harmony despite religious differences and work towards maintaining national unity for the benefit of the citizens. He further disclosed that Malaysia and Kenya could cooperate closely in technical education and further encourage exchange programme for teachers in various fields.

RECOMMENDATIONS

Institutes of Technology and Village Polytechnics.

The Committee recommends that village polytechnics and institutes of technology be strengthened through financial allocation and the curriculum being taught be reviewed to match the current technology demands.

The Committee further recommends that training function be carried out under one ministry and therefore the village polytechnics be placed under the ministry of Education for easier administration, coordination and inspection.

The committee further recommends that the Ministry of Education, Science and Technology upgrades the Directorate of Technical Education and further sources for funds to equip the technical institutes to enable them offer competitive courses based on demand. The policy on skills training also needs revision in order to give emphasis on middle level colleges.

The Ministry further ought to reconsider its policy decisions on scrapping of technical schools as they provide a pool from which skilled manpower can be sourced thereby enhancing specialization at an early age.

Allocations for research.

The Committee recommends that the government increases its research allocation from 0.01% to about 9-10% for research to have an impact. In the past no allocation has been given to research in universities and research institutions and the latter had to beg for research funds from donors. Universities ought to be recognized in allocation of research funds as a priority. Further, a body be set up to coordinate research findings in our local research institutions with a view to acquiring patents for innovations from our local universities and for linking research institutions with enterprise (for actualization of these findings into projects /programmes). This in turn would provide a revolving fund with which to develop other products. Our local universities and research institutes are unable to retain manpower due to non-recognition of research by the government.

Specialisation of Institutions of Higher Learning

The Committee recommends that the Ministry of Education encourages establishment of specialized universities for easier management and also specialization. Other than Jommo Kenyatta University of Agriculture and Technology other Universities offer all manner of courses ranging from Agriculture to Business. The Government ought to consider Introducing graduate schools teaching specific disciplines such as special education, industrial education, etc.

Funding of Higher Education

The Committee recommends that the Government seeks ways of building a sustainable fund from which needy students could be assisted to get university training and learn with some dignity. The loans extended to needy students are barely adequate to cover accommodation and meals.

The Committee further recommends that bursaries be extended to all students from middle colleges to universities. For industrialization to be realized, the middle colleges have to be enhanced in order to produce the skilled technicians the country requires for industrial growth.

Legislation of Bio-safety Bill

The Committee recommends that the government moves with speed to legislate on the Bio-safety Bill to regulate the movement of Genetically Modified Organisms and other transgenic products, to curb unregulated importation of these products into the country and institute penalties for breach of these regulations.

Curriculum Content and Design

The Committee recommends that the curriculum taught in all our learning centers be reviewed periodically to aptly address changes in technology, and also curb unrest in learning institutions through subjects taught at an early stage in a learner's life. The Committee recommends further that all schools, colleges, and universities should have trained counselors whose duty is specifically to identify and rectify unwanted behaviour in learners at an early stage. The curriculum content should be needs driven.

Recognition of the Role of Private Universities

The Committee recommends that the government looks into ways of encouraging the growth of private universities through grants and aid /loans for expansion of technical facilities like science based laboratories .The premises through which this is done is that manpower trained in these institutions will eventually be absorbed in the economy.

The government could also consider enacting legislation exempting private universities from taxation in the sale and acquisition of properties.

Adult Literacy

The adult illiteracy estimate in the country stands at 4.2 Million. There is therefore need for policy review in adult education to change focus from glorification of academic credentials to acquisition of skills in all stages of life. Learning opportunities ought to be expanded for the mature learners and a mechanism be provided to enable those wishing to pursue degree courses gain entrance to universities.

REPUBLIC OF KENYA



KENYA NATIONAL ASSEMBLY

ELEVENTH PARLIAMENT-SECOND SESSION, 2014



REPORT OF STUDY VISIT TO PORTUGAL BY THE
THE DEPARTMENTAL COMMITTEE ON EDUCATION, RESEARCH AND TECHNOLOGY

CLERK'S CHAMBERS
PARLIAMENT BUILDINGS
NAIROBI

JULY, 2014

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1.0 PREAMBLE

Mr. Speaker Sir,

Mandate of the Committee

The Departmental Committee on Education, Research and Technology is established pursuant to **Standing Order No. 216**, and has the following functions:

- i) To investigate, inquire into, and report on all matters relating to the mandate, management, activities, administration, operations and estimates of the assigned Ministries and Departments;
- ii) To study the programme and policy objectives of the Ministries and Departments and the effectiveness of the implementation;
- iii) To study and review all legislations referred to it;
- iv) To study, assess and analyse the relative success of the Ministries and Departments as measured by the results obtained as compared with their stated objectives;
- v) To investigate and inquire into all matters relating to the assigned Ministries and Departments as they may deem necessary, and as may be referred to them by the House or a Minister; and
- vi) To make reports and recommendations to the House as often as possible, including recommendation of proposed legislation'.

The provisions of the Second Schedule to the Standing Orders states the Terms of Reference (TOR) for the Departmental Committee of Education, Research and Technology as-

- i. Education;

- ii. Training;
- iii. Research; and
- iv. Technological Advancement

The Standing Orders also empowers the Committee to make its own selection of the subjects regarding the policy, management, administration, etc of the Ministries and Departments falling under its jurisdiction.

2.0 Background to the study

Since 2005, the Ministry has been implementing ICT integration programmes mainly in secondary school level, albeit on a small scale. Some of these initiatives include; Nepad e-project (6 schools), Accelerating 21st Century Education-ACE- (20 primary schools) and ICT Economic Stimulus Programme (1400 secondary schools). However, the policy shift to provide laptops to all learners entering standard one in 2014 changed the dynamics and brought about new opportunities and challenges. First, being a large scale implementation, it required urgent capacity building of staff at the ministry to be able to effectively implement such a unique initiative, involving deployment of over 1.2 million laptops at once. Secondly, apart from the ACE initiative in few primary schools in Mombasa and Garissa Counties, no other pilot study had been undertaken before in other parts of Kenya to inform the implementation.

It is on this basis that the Committee chose to undertake a benchmarking visit to Portugal since the country has implemented “One Laptop per Child Project” (OLPC) successfully on a large scale both in secondary and primary education and to also learn from their experiences in order to inform the Kenyan initiative. The study visit was undertaken jointly between the Committee and the Ministry of Education, Science and Technology from 17th and 21st November 2013 where USAID facilitated the full cost of the trip for four (4) Ministry officials, whereas Parliament through the Parliamentary Service Commission met the cost of eight (7) Members.

2.1 Objectives of the Visit

The overall objective of the visit was to learn lessons of implementation of the OLPC programme from Portugal in order to inform the Kenyan initiative.

The specific objectives were to establish the following:

- i. What policy framework exist for ICT integration?
- ii. How was teacher preparation undertaken in terms of use of new technologies for teaching and learning? How was training organized? What challenges or success factors?
- iii. Development and use of digital content- who develops content, how do schools access content and who pays for content?
- iv. Broadband Connectivity- is connectivity available to all schools and who pays for this service? What safety mechanisms for use of Internet by learners?
- v. Are all learners provided with laptops? Who owns laptops:-learners or the school? How are they stored? Are they carried home by learners? Responsibility for replacement in case of theft or damage?
- vi. How are cases of theft handled? Any technological solutions or what measures government has undertaken?
- vii. E-readiness of the schools: How were the schools prepared in terms of Physical infrastructure (classrooms, electricity connection, furniture etc)? Are there schools using other alternatives of power?
- viii. Sustainability of project:-what specific measures were considered to Make project sustainable in the long run? Funding models and priorities, support measures for maintenance of hardware- repairs, troubleshooting etc?
- ix. Curriculum: - what did government do to ensure Curriculum is aligned to ICT?

- x. What economic benefits if any has been derived from the project –skills development, employment opportunities (local assembly- manufacturing) etc.?

The delegation comprised the following:

1. Hon. Sabina Chege, MP - Chairperson
2. Hon. Julius Melly, M.P - Vice-Chairperson
3. Hon. Cecilia Ngetich, M.P - Committee Member
4. Hon. Dorcas Kedogo, M.P - Committee Member
5. Hon. Jared Opiyo, M.P - Committee Member
6. Hon. Joseph Nyumu, M.P - Committee Member
7. Hon. Michael Munyao, M.P - Committee Member
8. Hon. Susan Chebet, MP - Committee Member
9. Ms. Susan Maritim - Committee Clerk

2.2 Highlights of the Study Visit

The delegation had a busy schedule of four days which mainly focused on the implementation of the laptop programme. The main activities included:

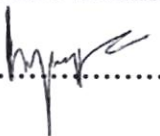
- (i) Courtesy call on Minister for Education, Science and Technology, Prof. Nuno Crato
- (ii) Visit to selected primary schools in city of Lisbon and city of Porto;
- (iii) Tour of Leya publishing firm (digital content developer);
- (iv) Tour of JP Inspiring Knowledge (Magellan factory) for making Classmate laptops for students in Porto;
- (v) Visit to Portuguese Parliament and meeting with Parliamentary Education Committee from Portugal;
- (vi) Meeting the Millenium@education officials and private sector;
- (vii) Meeting with Microsoft officials and skype conference with Microsoft Vice President, Mr. Michael Salcido.

The delegation was well received by the Portuguese Government and had a great opportunity to interact with various stakeholders in Portugal's education sector. There were many lessons learnt as enumerated later in this Report.

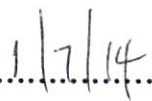
The Committee sincerely wishes to thank the Offices of the Speaker and the Clerk for the National Assembly for the necessary support and service accorded to the Members to ensure the Committee executes its mandate accordingly.

I thank all Members of the Committee for their patience, sacrifice, hard work and more importantly, their objectivity. I further thank the Committee secretariat for its commitment and due diligence.

It is my pleasant duty and privilege, on behalf of the Departmental Committee of Education, Research and Technology, to present this report on benchmarking visit to Portugal.

Signed 

(HON. SABINA CHEGE, MP
(CHAIRPERSON)

Date: 

3.0 THE PORTUGUESE EXPERIENCE IN INTERGRATING ICT IN SCHOOLS

3.1 Portugal: Brief Country Profile

Portugal covers an area of 92,090 km² with a population of approximately 10.7 million people. The country has a unicameral assembly comprising of 230 seats whereby members are elected by popular vote to serve four-year terms.

3.2 Education System in Portugal

The Ministry of Education (primary and secondary education) and the Ministry of Science, Technology and Higher Education (higher education) are jointly responsible for the entire Portuguese education system, and are supported by the Ministry of Labour and Social Solidarity in providing pre-school education.

i. Pre-School Education

Pre-school education for children between the ages of three and five is still optional. It is provided by kindergartens, which are run by a variety of State organisations, charitable institutions, private schools and cooperatives, unions and other organisations.

ii. Compulsory Schooling: Basic Education

Basic education is compulsory and free and lasts for nine years, covering children and young people between six and 15 years of age. It comprises three consecutive cycles: the 1st cycle (four years) provides a general education, with a single teacher (sometimes supported in specialised areas); the 2nd cycle (two years) and the 3rd cycle (three years) are taught by a single teacher per subject or multidisciplinary educational field.

iii. Post-compulsory Schooling: Secondary Education

This comprises three years of education (10th, 11th and 12th years of schooling). It is geared towards anyone who intends to continue studying or to join the labour market. It includes

science and humanities and specialised artistic, technological or vocational training courses, and is provided by secondary schools and vocational schools.

iv. Higher Education

Higher education in Portugal involves universities and polytechnics.

3.3 Visit to Portugal

The Committee held meetings with various stakeholders in the education sector specifically with a bias on implementation of ICT in schools. The delegation was privileged to meet the following:-

- i. Ministry of Education and Science: Met with the Minister, Mr. Nuno Crato and other senior education officials
- ii. Education Committee of the Assembly of the Republic of Portugal (Parliament)
- iii. Leya Publishers: publishers of educational digital content
- iv. Microsoft
- v. JP Inspiring Knowledge: Portugese computer manufacturing company Bi-Bright Company Ltd manufacturers of white interactive boards for classrooms
- vi. Field visits to various primary schools

3.4 Courtesy Call on Minister for Education, Prof Nuno Crato

The meeting held at the Minister's office discussed on common issues affecting quality of education between the two countries. The following areas of cooperation and further engagement were agreed:

1. Portugal to share its vast experience in science and technology with Kenya
2. Student exchange programmes between institutions of higher education
3. ICT integration in education

4. Teacher training and maintenance of teaching standards
5. Establishment of the Open University in Kenya
6. Alternative sources of power e.g. solar energy

3.5 The Implementation of the Laptop Programme in Portugal

The Government of Portugal initiated a program to integrate ICT in education called "e-escola Programme" in September 2007;

Technology was started as a tool to spur economic development, as government envisaged Portuguese schools to be "at the frontline of technological change" which was to bring about knowledge economy.

The programme which was implemented in phases, started with provision of laptops to learners in grade 1 to 4 along with broadband internet access. Similar package was also offered to all teachers and secondary students. The laptops included Windows software and sold for between Euro to 50 EUR 150 depending on economic status of the family.

Students from low-income households received subsidized to free laptop but they had to pay for the broadband service subscription, while the high income paid for the full cost.

The project was a partnership between the government and the private sector especially the TELECOs. A factory was established called Magellan which produced the Intel classmate PCs.

Magalhães is a small sized, light and rugged laptop developed especially for students. It contains a set of specific applications for collaborative education and other educational applications.

The full-functional classmate PCs are designed for young students; the systems are compact, simple to use, water and shock resistant. Education-oriented software for classmate

MOW - Magalhães on Wheels - a solution for mobile classroom, which can eventually be shared within a school. So the teachers have at their disposal a kit with equipment for students, teachers, equipment for setting up Wi-Fi network and Internet access, all housed in a transport, storage and loading Car (Cabinet).



- i. **SIB-School in a Box** - a complete solution concept for a school with a school server for content storage and validation of users, software, content management, sharing and group collaboration, equipment for classrooms with projectors, interactive board with replicas of the previous concept, **MOW**, for each classroom.

250,000 laptops had been delivered by June 2008, which increased to 1.7 million laptop distributed to all students in both primary and secondary schools 3 years later. The government distributed the laptops to children and teachers both in public and private institutions. Private schools were also included in the initiative to create inclusivity and ownership. However, due to budgetary constraints, the present government has discontinued the programme.

3.6 Curriculum Reform

1. The Government provided a national curriculum to guide development of content.
2. Publishers and teachers played a critical role in the development of digital content.

3. Many private publishers such as LEYA provides a learning management system and digital content for use by schools.

3.7 E-Readiness of the Schools (Infrastructure Support)

1. The government provided large scale establishment of Interconnectivity infrastructure, while the private sector (TELCOs) provided the internet connectivity.
2. The government upgraded the physical infrastructure of all the schools and connected the schools to electricity.
3. There was availability of technical expertise (ICT technicians)
4. The project was popular among the TIVET institutions as it encouraged research and cooperation in science education and other technical fields.

3.8 Security of Devices

There was overwhelming support by the general public . They had positive attitude towards the new initiative and they appreciated the benefits which included ownership and easy use of internet facility in their homes, since children took the laptops home. Insecurity has not been a threat in Portugal

3.9 Teacher Training

The government made it compulsory for pre-service training to include ICT skills and pedagogy. In addition, teacher training incorporates ICT integration hence there were no challenges as concerns teacher preparedness in project implementation. Teaching as a profession, requires that after 3 year bachelor's degree, one must undertake 1-2 years professional course and must pass the teaching subjects in order to be registered as a teacher. Government pays attention to teacher Continuous professional Development (CPD) and a teacher is required to undergo twenty five (25) hours of training annually to allow for renewal of licensing.



4.0 Observations

1. The role and contribution by the private sector on the project implementation was motivated by the realization that ICT is a tool to spur the economy. The sector focused on teamwork among service providers to provide solutions in ICT integration to schools in a cost effective manner.
2. The teacher assumes a new role in the classroom, he/she becomes more of a mentor, because he challenges students to seek new ways to obtain knowledge, through content available in the school or through the web, thereby ensuring that the retention of knowledge by students' self-learning is higher, leveling the knowledge in the classroom with the use of collaborative tools, focusing on students with more learning difficulties, but not forgetting those who learn faster by giving them jobs so that they maintain the level of interest in the class.

3. The public and stakeholders were sensitized on the social and the economic value of the project hence immense support was realized. There was public-private partnerships in helping to lower the costs of acquiring and sustaining new technologies across broad segments of the society e.g laptops, digital content, broadband connectivity.
4. People like new things or new approaches to doing things. The parents in both public and private schools have continued to buy the laptops for their children even after the government discontinued the provision of these laptops.
5. Teacher enthusiasm is seen in the commitment to develop an INSET curriculum, and undertake the 3 hour training weekly modular program, which takes 7 months to complete. The platform provides the teachers forum to interact and share ideas in addition to accessing content on skill upgrading.
6. The development of content was opened to both teachers and publishers, and the government validated it. The content was availed on a multimedia platform to provide opportunity for all stakeholders to share resources. Content is accessible online to all for both classroom teaching and inset programs for teachers.
7. Establishment of a common e-learning platform for teachers provided support for teachers on new scenarios of teaching, tutor support materials, data on learning outcomes, student online platform. This platform provides for e-learning forum between teachers and designed as module for inset.
8. Curriculum content for learners and teacher training is reviewed periodically depending on the changing needs of the learners. This process involves participation of curriculum developers, teachers, learners and education officials and publishers.
9. Integration of ICT in schools is a comprehensive program aimed at educational 'transformation' to help improve education through the widespread introduction of new technologies, low-cost laptops, broadband connectivity, educational content, and related training and support.

10. One of the impacts of integrating ICT in the classroom is creation of local, sustainable economic model to fuel local job creation in local IT industries and expand international trade opportunities.

5.0 Recommendations

1. There is need for Public Private Partnership (PPP) to ensure successful implementation of the ICT integration project. The government should partner with other players like the telecommunication industry. The Government should adequately sensitize both the parents and political leadership during the implementation phase for the sustainability of the project.
2. The implementation of the project should be embraced by all and hence should not be seen as a political project. There is need therefore to rebrand the project as an “*ICT Integration project*” as opposed the “*laptop project*”
3. The government should establish a local assembling plant to tap into the young innovative mind of the young people. This would ensure that the Government creates more employment opportunities for the youth. The Ministry of Education, Science and Technology should also ensure that the development of digital content development is not monopolised to allow different players access to the platform while the Ministry of Education, Science and Technology does the verification and approval of the content. In addition, the government should come up with local recycling plant so as to manage the e- waste.
4. The Government should implement the project in a phased out approach depending on infrastructure readiness of schools i.e secure storage and electricity or solar energy access.

5. The government should exempt taxation on importation of education support materials like hardwares and softwares so as to allow people interested in donating these equipments to do so without taxation.
6. The Teachers Service Commission should absorb the teachers who have already undergone comprehensive training on ICT. In addition, training of teachers on ICT should be a continuous process to ensure that teachers acquire new skills continuously.
7. There is need for a regular/ periodic national forums to review the different components of the project.
8. The Government should establish a centralized place for all the pupils to have access to ICT knowledge/ literacy.

6.0 Conclusion

The four day study tour was highly successful. The members of delegation highly praised the implementation of the ICT integration in Portugal and appreciated the role of ICT in the socio economic development of a country. Portugal indeed offered very interesting and beneficial lessons for Kenya on how the private sector and Government can partner to implement a programme of such magnitude.

MINUTES OF THE 32ND SITING OF THE DEPARTMENTAL COMMITTEE ON EDUCATION, RESEARCH AND TECHNOLOGY HELD ON 23RD JUNE, 2014 IN COMMITTEE ROOM, 2ND FLOOR, CONTINENTAL HOUSE, PARLIAMENT BUILDINGS AT 4:00PM

PRESENT

1. **Hon. Sabina Chege, M.P. - Chairperson**
2. Hon. Dr. Susan Chebet, M.P
3. Hon. Mohamed Huka, M.P
4. Hon. Yusuf Chanzu, M.P
5. Hon. Muriuki Njagagua, M.P
6. Hon. Dr. Wilber Ottichillo, M.P
7. Hon. Kedogo Dorcas Luvalitsa, M.P
8. Hon. Eric Keter, M.P.
9. Hon. Moses Injendi, M.P.
10. Hon. Joseph Manje, M.P.
11. Hon. Hellen Sambili, M.P.
12. Hon. Geoffrey Makokha Odanga, M.P
13. Hon. Dr. Christine Ombaka, M.P
14. Hon. Joseph M'eruaki, M.P
15. Hon. Micahel Kiso, M.P
16. Hon. Silverse Anami, M.P
17. Hon. Jacob Macharia, M.P

ABSENT WITH APOLOGY

18. **Hon. Julius Melly, M.P - Vice Chairperson**
19. Hon. Rose Mitaru, M.P
20. Hon. Makenga Richard Katemi, M.P
21. Hon. Halima Ware Duri, M.P
22. Hon. Jared Opiyo, M.P
23. Hon. Anthony Kimaru, M.P.
24. Hon. Harrison Kombe, M.P.
25. Hon. Cecilia Ng'etich, M.P.
26. Hon. Ibren Nasra Ibrahim, M.P
27. Hon. Mary Seneta, M.P
28. Hon. Kenneth Okoth, M.P

IN ATTENDANCE

National Assembly Secretariat

- | | |
|--------------------------------|-----------------------|
| 1. Ms. Leah Wanjiru | First Clerk Assistant |
| 2. Mr. Jimale Mohamed | Third Clerk Assistant |
| 3. Mr. Mugoma John | Third Clerk Assistant |
| 4. Mr. Emmanuel Muyodi Meldaki | Third Clerk Assistant |

MIN.NO.DC.D/ 142/2014: PRELIMINARIES

The Chairperson called the meeting to order at 4.25 pm. Thereafter a word of prayer was said by the Hon. Prof. Hellen Sambili, M.P.

MIN.NO.DC.D/143/2014: ADOPTION OF THE AGENDA.

The agenda of the meeting was proposed by Hon. Dr. Susan Chebet, M.P and seconded by Hon. Dr. Christine Ombaka, M.P

MIN.NO.DC.D /144/2014: CONFIRMATION OF MINUTES FROM THE PREVIOUS SITTING.

Minutes of the 24th, 25th, 26th, 27th, and 28th sittings were confirmed as the true record of the proceedings as follows:-

24th Sitting

Proposed by – Hon. Dorcas Kedogo, M.P

Seconded by - Hon. Dr. Wilber Ottichillo, M.P

25th Sitting

Proposed by – Hon. Joseph M'eruaki, M.P

Seconded by – Hon. Muriuki Njagagua, M.P

26st Sitting

Proposed by – Hon. (Prof.) Hellen Sambili, M.P

Seconded by – Hon. Geoffrey Makokha Odanga, M.P

27th Sitting

Proposed by – Hon. Eric Keter, M.P

Seconded by – Hon. Dorcas Kedogo, M.P

28th Sitting

Proposed by – Hon. Jacob Macharia, M.P

Seconded by – Hon. Joseph M'eruaki, M.P

MIN.NO.DC.D /145/2014: MATTERS ARISING

UNDER MIN.NO.DC.D/103/2014:

The Committee noted that the meeting with the Ministry scheduled for 30th June, 2014 would discuss, inter alia the implementation of the ICT project and the free sanitary towels programme.

UNDER MIN.NO.DC.D/109/2014: Pending reports

1. The report on the fact finding visit to Chepkurkur Primary School (Girl child) should be ready in two weeks' time.
2. The draft reports on the fact finding visit to Meru University was ready and into two weeks' it would be ready for consideration by the Committee.
3. The draft report on the benchmarking visit to China should be concluded in readiness for tabling.

UNDER MIN.NO.DC.D/114/2014

The Committee noted that the Senate went ahead to suspend the Kisii University students for 1- 3 years despite the intervention of the Committee. The Committee would appeal to the senate to have the students given a second chance to be able to continue with their studies.

MIN.NO.DC.D /146/2014: CONSIDERATION AND ADOPTION OF REPORT ON BENCHMARKING VISIT TO PORTUGAL.

The Committee considered the report on the benchmarking visit to Portugal and made the following recommendations:-

1. There is need for Public Private Partnership (PPP) to ensure successful implementation of the ICT integration project. The government should partner with other players like the telecommunication industry. The Government should adequately sensitize both the parents and political leadership during the implementation phase for the sustainability of the project.
2. The implementation of the project should be embraced by all and hence should not be seen as a political project. There is need therefore to rebrand the project as an "*ICT Integration project*" as opposed to the "*laptop project*".
3. The government should establish a local assembling plant to tap into the young innovative mind of the young people. This would ensure that the Government creates more employment opportunities for the youth. The Ministry of Education, Science and Technology should also ensure that the development of digital content development is not monopolised to allow different players access to the platform while the Ministry of Education, Science and Technology does the verification and approval of the content. In addition, the government should come up with local recycling plant so as to manage the e- waste.

4. The Government should implement the project in a phased out approach depending on infrastructure readiness of schools i.e secure storage and electricity or solar energy access.
5. The government should exempt taxation on importation of education support materials like hardware and software so as to allow people interested in donating these equipment to do so on tax exemption.
6. The Teachers Service Commission should absorb the teachers who have already undergone comprehensive training on ICT. In addition, training of teachers on ICT should be a continuous process to ensure that teachers acquire new skills continuously.
7. There is need for a regular / periodic national forum to review the different components of the project.
8. The Government should establish a centralized place for all the pupils to have access to ICT knowledge/ literacy.

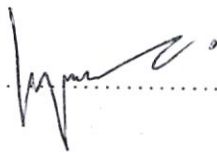
MIN.NO.DC.D/147/2014: ANY OTHER BUSINESS

The Committee noted that KNUT officials were present during the meeting with the bishops at the Cardinal Otunga Plaza despite the meeting not been open to them. The Committee noted that one of the Members of the Committee had invited them. The Chairperson stated that future communication would only be done by the Chairperson.

MIN.NO.DC.D/148/2014: ADJOURNMENT.

There being no any other business, the meeting adjourned at 6 O'clock.

Signed.....



HON. SABINA CHEGE, M.P
(CHAIRPERSON)

Date.....

1/7/14