

REPUBLIC OF KENYA



PARLIAMENT
OF KENYA
LIBRARY

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

Table of Contents

1.0 PREAMBLE	2
Mandate of the Committee	2
2.0 Background to the study.....	3
2.2 Highlights of the Study Visit.....	5
3.0 THE PORTUGUESE EXPERIENCE IN INTERGRATING ICT IN SCHOOLS	7
3.1 Portugal: Brief Country Profile	7
3.2 Education System in Portugal.....	7
3.3 Visit to Portugal	8
3.4 Courtesy Call on Minister for Education, Prof Nuno Crato	8
3.5 The Implementation of the Laptop Programme in Portugal.....	9
3.6 Curriculum Reform	10
3.7 E-Readiness of the Schools (Infrastructure Support)	11
3.8 Security of Devices	11
3.9 Teacher Training	11
4.0 Observations	12
5.0 Recommendations	14
6.0 Conclusion.....	15

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:

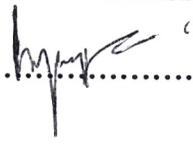
- (i) Courtesy call on Minister for Education, Science and Technology, Prof. Nuno Crato
- (ii) Visit to selected primary schools in city of Lisbon and city of Porto;
- (iii) Tour of Leya publishing firm (digital content developer);
- (iv) Tour of JP Inspiring Knowledge (Magellan factory) for making Classmate 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.

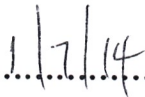
The Committee sincerely wishes to thank the Offices of the Speaker and the Clerk for the National Assembly for the necessary support and service accorded to the Members to ensure the Committee executes its mandate accordingly.

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 Kisoi, 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 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 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 Governement creates more employment oportunites 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.

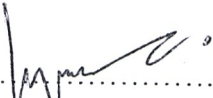
4. The Government should implement the project in a phased out approach depending on infrastructure readiness of schools i.e secure storage and electricity or solar energy access.
5. The government should exempt taxation on importation of education support materials like hardware and software so as to 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