ICT in Education Policy
for
Antigua and Barbuda

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Acknowledgements

Gratitude is extended to the following persons and agencies for their contribution towards the development of the ICT Policy in Education 2013.

FOREWORD

Dr. Hon. Jacqui C. Quinn-Leandro MP
Minister of Education, Sports, Youth & Gender Affairs

The Ministry of Education, Sports, Youth & Gender Affairs is delighted to present this ICT policy which articulates our vision for integrating ICTs across all levels of education in Antigua and Barbuda. In an era when the global focus is now concentrated on the knowledge industries; improving Science, Technology, Engineering and Mathematics, STEM education is critical to national development priorities.

This document ushers in a new era in which we see not only major collaborations with the Ministry of Telecommunications, Science & Technology, but also with stakeholders in ICTs such as CKLN, UNESCO, COL, OECS and the various industries and ministries that crosscut education. After all, we are preparing, shaping and moulding the workers who will enter the labour market; and the leaders who will manage economies in the future.

Let this document serve as a guide, a roadmap, to chart the way forward as we ensure that Antigua and Barbuda remains at the cutting edge of ICT development. In this regard, the proposed Inter-Ministerial ICT in Education Steering Committee bringing together the Ministries of Education, Sports, Youth, and Gender Affairs; Telecommunications, Science, and Technology; and Finance and Information will be quintessential to properly managing and monitoring the strategic ICT Integration Implementation Plan. Much has been accomplished in the past with these synergies in place and we anticipate that this collaboration will continue to yield rich dividends.

ICTs are the future: it is imperative that we *embrace* ICTs to be enriched and enlightened. *Our nation's development not only requires it, but demands it.*

Acronyms

ABUT	Antigua and Barbuda Union of Teachers
CACs	Community Computer Access Centres
CC	Creative Commons
CFT	Computer Framework for Teachers
CCTI	Commonwealth Certificate for Teacher ICT Integration
COL	Commonwealth of Learning
CPD	Continuous Professional Development
EMIS	Education Management Information System
ICT	Information Communication Technology
LMS	Learning Management System
NPTA	National Parent Teachers Association
OECS	Organization of Eastern Caribbean States
OER	Open Education Resource
OESS	OECS Education Sector Strategy
STEM	Science Technology Engineering and Mathematics
UNESCO	United Nations Educational, Scientific and Cultural Organization

Introduction

The vision of the Ministry of Education, Sports, Youth, and Gender Affairs in Antigua and Barbuda is to encourage lifelong learning and educate our citizens to access and evaluate knowledge through creative problem-solving and critical thinking in preparation for work in a dynamic national, regional and global economy.

Our mission is to ensure that all students in Antigua and Barbuda obtain the highest quality education possible from the pre-school to the post graduate level that will enable them to become good citizens who will be able to compete nationally, regionally and globally. We will work with various stakeholders in the society in order to improve and strengthen our educational, sports and youth empowerment institutions, to develop productive citizens, who can learn and work independently and cooperatively to contribute to their national, regional and global communities.

Within the framework of this vision and mission, the government of Antigua and Barbuda recognizes that knowledge-based activities have become increasingly important. It is this recognition that has prompted Government to develop the use of Information and Communication Technology (ICT) in its daily activities. There has been a thrust in training citizens to use available technology and to become more effective and efficient. Through the introduction of a new ICT in Education Policy for Antigua and Barbuda, it is the Ministry's hope to respond to the change which technology brings to the nature of work and the work place, the so-called 'Knowledge Revolution'. This is paramount for the Ministry, charged with the responsibility to educate the labour force to harness the power of ICT for continued development. We are committed to improving the teaching, learning and administrative processes in the education system with effective use of ICT and to provide all students with the basic ICT skills that are necessary for the information age.

This commitment is consistent with broader regional education policy within the Organization of Eastern Caribbean States (OECS). The *OECS Education Sector Strategy (2012 – 2021)* (or OESS) articulates a vision for a whole school curriculum that **'**engages school leadership, teacher skills, knowledge and understanding, curriculum leadership, professional learning, data collection and use, sharing and transferring knowledge and good practice, and the use and application of resources and ICT in a cyclical and iterative process' (OECS, 2012). It is also consistent with the Government's current emphasis on Science

Technology, Engineering, and Mathematics (STEM), with are a key pillar of national development plans in Antigua and Barbuda.

This policy replaces the previous ICT in Education Policy from July, 2003.

1. Strategic Educational Priorities

To contextualize the rationale for integration of ICT across all levels of education in Antigua and Barbuda, the Ministry of Education, Sports, Youth, and Gender Affairs has identified the following as key strategic priorities to guide effective ICT integration into education:

1.1. The Ministry is committed to creating globally competitive students/citizens by ensuring that all children are given an opportunity to learn and are able to develop effective competence in all relevant subjects of study.

1.2. There is a need to provide both universal early childhood education and universal secondary education. In secondary education, special focus will be placed on enhancing both physical and intellectual access to secondary level educational opportunities

1.3. The Government of Antigua and Barbuda is committed to creating an inclusive society to ensure that the potential of all students is realized, irrespective of physical, visual, or other challenges. This needs to be supported by establishing a functional diagnostic centre.

1.4. Emphasis on improving learner achievement is needed with a view to:

   1.4.1. Increasing the number and quality of passes in each subject at all grade levels;

   1.4.2. Using authentic experiences to help student to apply content to real life experience (project- and problem based-learning); and

   1.4.3. Placing special emphasis on at-risk students to minimize the risks of these students dropping out of schooling prematurely.

1.5. It is essential to develop, and keep current, a standardized curriculum for all subject areas across all grade levels and to develop high-quality content standards at all levels to ensure comprehensive coverage of all aspects of this curriculum. Within this, the Ministry of Education, Sports, Youth, and Gender Affairs is committed to

providing access to comprehensive, freely available sets of openly licensed resources in multiple media for use in schools.

1.6. There is a need to restructure the education assessment processes for both educators, schools, and the overall system. This requires, amongst others:

1.6.1. Ongoing development and implementation of needs assessments for education in the country;

1.6.2. Analysis of the local market/economy in order to structure the education system in a way to meet key needs and fill gaps;

1.6.3. Analysis of assessments implemented that leads directly to implementation of changes in such a way that education goals and objectives are met;

1.6.4. Long-term commitment to introducing a suitable (and supportive) licensing system for educators.

1.7. The Ministry of Education, Sports, Youth, and Gender Affairs wishes to develop an open culture of research and information-sharing, amongst schools, educators, and principals, as well as across the system and with the broader community. This should both facilitate transparency and enable decision-making, policy development and programme implementation that is based on good research.

The Government of Antigua and Barbuda is committed to integrating ICT into its education system in ways that directly advance these key strategic priorities. In order to do this, it has identified a number of key policy commitments, presented below. These will then be implemented systematically through a rolling Strategic ICT in Education Master Plan.

2. Infrastructure and Connectivity

Through the Ministry of Telecommunications, Science and Technology, extensive ICT infrastructure has been supplied to the schooling system, including Community Computer Access Centres (CACs), Mobile IT Classrooms, the one-laptop-per-teacher initiative, tablets for senior secondary students, and widespread, free Internet access. Thus, the primary policy focus of the Ministry of Education, Sports, Youth, and Gender Affairs is to ensure optimal

use, care, maintenance, timely replacement, and environmentally responsible disposal of this ICT infrastructure. From this perspective, the following policy commitments are noted:

2.1. Connectivity and Internet access will be expanded and improved across the education system on an ongoing basis, with a particular focus on widening access to include classrooms (through wireless hotspots) and the Ministry of Education headquarters.

2.2. The Ministry of Telecommunications, Science and Technology will provide the necessary hosting infrastructure for key systems through its data centre. These systems will include a central Education Management Information System (EMIS), a Learning Management System (LMS) to be used in supporting school learning, an open educational resource (OER) repository, and appropriate communication and social networking tools to facilitate interaction between key education stakeholders within Antigua and Barbuda

2.3. Steps will be taken to ensure classroom safety, health, and security across schools. This will include:

   2.3.1. Development of an infrastructural standard for all classrooms;

   2.3.2. Improvement of basic infrastructure at the classroom level, including cable connections for wireless networks, electrical outlets, physical security facilities where necessary, and flexible furnishing arrangements to enable use of ICT in a wide range of educationally innovative and varied ways.

   2.3.3. Development of a suitable, environmentally responsible ICT replacement and e-waste disposal policy.

2.4. To ensure the optimal use of currently available ICT resources within the education system, the Ministry of Education will encourage greater local ownership and accountability from all schools by requiring them to develop an annual ICT Integration Plan. This will include

   2.4.1. A long-term vision for use of ICT in the institutions;

   2.4.2. Codes of conduct for ICT usage by students, educators, institutional management and administration, and the wider community;

2.4.3. Curriculum policies outlining how the institution intends to use ICT to support teaching across grades (or programmes) and learning areas/subjects;

2.4.4. A detailed list of technology and bandwidth requirements;

2.4.5. Timetables outlining how the ICT resource will be integrated into the educational day, and what levels of access will be made available to which groups of learners;

2.4.6. Clear policies on extended afternoon, weekend, and school holiday use of ICT, accompanied by plans to provide incentives to educators to enable this extended use;

2.4.7. Policies on community use of ICT;

2.4.8. Strategies to acquire further ICT as appropriate;

2.4.9. Professional development strategies;

2.4.10. Strategies to cover operating costs of ICT, including an annual budget;

2.4.11. Defined roles for ICT coordinators and their backups;

2.4.12. Guidelines on ICT application and educational content acquisition; and

2.4.13. Strategies for monitoring and evaluation.

2.5. All schools in Antigua and Barbuda will be expected to have such plans in place, and these will be updated and submitted annually as part of broader yearly school planning exercises. All acquisition of new infrastructure will need to be linked to effective use of already available infrastructure. Development of these plans will be coordinated by the Ministry at a national level, with guidance of the ICT in Education Steering Committee (see item 7 below) and inclusion of the ICT Teachers' Association and all school principals.

2.6. All plans will be reviewed upon the submission to the Ministry in order to ensure that they are realistic and to enable monitoring to determine relative success by schools in achieving set goals. This review process will be used as a basis for future resource allocations by the Ministry.

2.7. Clear codes of conducts on the use of computers and related devices, for all users (including Ministry officials, principals, educators, and students) will be developed and compliance ensured on an ongoing basis (both through school plans and national monitoring and evaluation strategies).

2.8. Current human resources for the maintenance of ICT infrastructure will be re-organized to streamline maintenance of ICT equipment. The following is noted in this regard:

2.8.1. A national infrastructure management plan will be developed and updated annually.

2.8.2. The Ministry of Telecommunications, Science and Technology will focus on connectivity, network, and central systems hosting.

2.8.3. A Dedicated ICT Maintenance Unit will be established within the Ministry of Education, Sports, Youth, and Gender Affairs, under the portfolio of the ICT Coordinator but also forming part of the Board of Education Maintenance Unit.

2.8.4. A structured focus will be placed on integrating school ICT Coordinators and students into maintenance systems to increase maintenance capacity and offer students grounded learning opportunities.

3. Teaching and Learning

The Ministry of Education, Sports, Youth, and Gender Affairs has, embedded in its vision and mission statements, a strong commitment to upgrading its curriculum to help students to develop skills that will enable them to succeed in the new knowledge economy. Experience worldwide indicates that ICT can play a key role in transformation of education. ICT can enhance educational reform by enabling educators and students to move away from traditional approaches to teaching and learning. In this transformed teaching and learning environment, there will be a shift from teacher-centred, task-orientated and memory-based education (with technology at the periphery), to an inclusive and integrated practice where learners work collaboratively, develop shared practices, engage in meaningful contexts, and

develop creative thinking and problem-solving skills (there are several initiatives that promote these kinds of shift already underway and demonstrating good results). With this in mind, the Government of Antigua and Barbuda notes the following policy commitments:

3.1. There will be ongoing review and revision of the national curriculum at all levels, with strong emphasis placed on adjusting assessment strategies to assess wider range of competences rather than just content recall. In this process, specific account will be taken of the ways in which ICT can, when used effectively, be harnessed to enable different kinds of teaching, support, and assessment. The objective will be to engage students in higher order thinking such as analysis and synthesis that is beyond simple recall or memorization, which encompasses thinking processes such as critical thinking and problem solving, and that result in active construction of new knowledge.

3.2. ICT will be harnessed, particularly at the secondary level, to enable more effective use of face-to-face interaction at schools, so that teachers are both empowered and provided the necessary time to shift their focus away from teaching content to supporting and mentoring students who work in increasingly diverse and flexible ways (including self-paced study using ICT infrastructure supplied by Government) during the school day.

3.3. Building on the previous commitment, the Ministry will seek to harness both technology and self-paced learning to enable at-risk students to keep pace with the curriculum and to introduce more flexible support systems during the school day, thus engaging these students in solving their educational challenges before they drop out of the system prematurely. Emphasis will also be placed on how ICT can be used to assist to develop skills that will assist students to create employment for themselves (through suitable forms of entrepreneurship).

3.4. The Ministry of Education, Sports, Youth, and Gender Affairs will develop a repository of openly licensed resources, with a view to ensuring that all students in the country have free and open access to openly licensed resources of multiple media that are sufficiently comprehensive to enable them to successfully meet the requirements of the regional and national curriculum frameworks governing education in Antigua and Barbuda. It will seek to develop this national repository in

partnership with other OECS states, so that it forms part of a wider regional repository of openly licensed content. This repository will include:

3.4.1. Clear criteria for the assessment of educational resources, with a heavy emphasis on access to authentic tools and resources that reflect real-life experiences, through project- and problem-based learning;

3.4.2. Facilities to enable users both to rate the quality of resources (to encourage community-owned quality assurance), to conduct peer review (to ensure quality), and to upload their own resources;

3.4.3. Guidance to users in accessing online materials (OER, educational sites, web links, video materials, and so on);

3.4.4. Facilities for students to set up or join peer support groups and for educators to set up or join professional communities of practice within Antigua and Barbuda.

3.5. The Ministry of Education, Sports, Youth, and Gender Affairs harness suitable ICT tools and software to support its goal of providing universal access to high quality education at all levels, commencing from the early childhood level.

3.6. Likewise, The Ministry will prioritize the procurement of assistive technologies for students with special educational needs.

4. Licensing

Given the strong commitment articulated to use of OER above, the Government of Antigua and Barbuda is committed to opening access to educational materials produced in the country. Consequently, the following policy commitments will pertain to government investments in educational materials, all within the framework of the Copyright Act No. 22 of 2003:

4.1. All educational materials produced with Government funds – including both research resources and teaching and learning resources – will be released under a suitable Creative Commons licence, to facilitate their use, electronic sharing, and adaptation

by others. This will include resources of all media types, including print/text, audio, video, and computer-based multimedia.

4.2.   The Ministry of Education will adopt, as a default licence for all products produced through government funding, a Creative Commons (Attribution) licence. Likewise, it will encourage all development agencies and foundations operating in Antigua and Barbuda to adopt a similar licence for all materials produced with development aid. In any cases where another licence is not explicitly mentioned, this default licence will be applied to any materials produced with government funds.

4.3.   Authors of works produced with government funds will be entitled to apply additional licence restrictions from the Creative Commons licence framework if desired, but will then need to make this explicit by inserting chosen licence in materials they have developed.

4.4.   Where a case can be made for commercial exploitation of resources, authors or institutions will be entitled to insert a traditional, All-Rights Reserved Copyright licence, but only after submission of a justification for this restriction have been supplied to the specific agency funding the work and approval having been granted for this in writing by the agency in question.

4.5.   To facilitate sharing of its materials, the Ministry of Education will work to ensure that every document released for distribution via the Internet (through its national repository) will indicate the licensing conditions of the resources clearly on the resource itself, using properly marked, machine-readable Creative Commons licenses.

4.6.   Responsibility will reside with authors of works to ensure that any third-party materials incorporated in resources produced with government funds do not breach any relevant copyright laws, either nationally or globally.

5.   Management and Administration

To support more effective management and administration of education in Antigua and Barbuda, the Government notes the following specific policy commitments:

5.1.   An online, multi-level Education Management Information System (EMIS) will be developed and deployed online to measure and track outcomes at the class, school, zone, and Ministry level (with data accessible to multiple ministries and external agencies requiring data from the Ministry on a regular basis). The EMIS will include management tools at school level to facilitate day-to-day management of schools and automated uploading of data into the central EMIS. The EMIS will be used to measure the effectiveness of instruction and student learning, curriculum implementation, and guide modifications. It is noted that this will require continuous training of data handlers to analyse information and generate necessary reports that can be used by decision-makers across the system to assist in development of new policies and other key strategic decisions.

5.2.   The Ministry of Education, Sports, Youth, and Gender Affairs will focus on enhancing administrative use of ICT by individuals, by using current infrastructure more efficiently. To this end, it will complete an annual exercise to review and enhance the effectiveness of the ICT Systems in place with a view to continuously improving management and administrative functions.

6.   Human Resources

The Government of Antigua and Barbuda is committed to developing and implementing a comprehensive and relevant framework that will continuously train and empower key stakeholders in education and ICT while expanding their core competences. These stakeholders include Ministry of Education officials, school principals and management teams, administrators, teacher educators, educators at all levels, students, parents, and the general public.

Given these needs, the following policy commitments are noted:

6.1.   The UNESCO ICT Competency Framework for Teachers (CFT) will be adopted in Antigua and Barbuda to guide all professional development of educators in the Country. The ICT CFT creates a common core syllabus that can be used to develop learning materials sharable at a global level, provides a basic set of qualifications that allows educators to integrate ICT into their teaching; extends educators' professional

development so as to advance their skills in pedagogy, collaboration, and school innovation using ICT, and harmonizes different views and vocabulary regarding the uses of ICT in teacher education.

6.2. Professional development of teachers will focus on all teachers to ensure effective ICT use from the early childhood level. Furthermore, the ICT CFT will be used as a framework to govern both pre-service training and continuing professional development (CPD), to ensure that there are pathways for ongoing capacity building and refresher courses.

6.3. It is important to determine initial training and continuous professional development (CPD) needs for all key stakeholders, while providing them with the necessary resources and opportunities to meet their educational needs. Consequently, a baseline audit of competence will be repeated annually to establish competency levels amongst all key stakeholders, as well as to monitor developments in competence over time.

6.4. Using the UNESCO ICT CFT, the Ministry of Education, Sports, Youth, and Gender Affairs will seek to align and integrate all relevant current professional development courses in the country into a broader national framework of competence. This will include courses offered by the University of the West Indies, the Ministry itself (through the Teacher Education Department and Curriculum Development Unit), and other support agencies such as the Commonwealth of Learning. Where necessary, existing courses will be reviewed to ensure alignment with the UNESCO ICT CFT.

6.5. The Ministry will work with the Commonwealth of Learning to incorporate ongoing use of the Commonwealth Certificate for Teacher ICT Integration (CCTI) in Antigua and Barbuda. This Advanced Certificate in Education will primarily be aimed at teacher educators initially, although it will also be made available for enrolment by any interested teachers.

6.6. As has been noted, strong emphasis will be placed on developing a sense of ICT ownership amongst school principals by supporting the development, implementation, and monitoring of school ICT Integration Plans. To this end, a rolling series of professional development activities, including development of an agreed national template for ICT Integration Plans, will be implemented to support school principals in this work.

6.7. Courses and modules developed in Antigua and Barbuda will build on and adapt existing national and international courses and modules wherever possible, in order to reduce the costs of development and to improve the quality of the courses offered. Extending the principle of harnessing existing content, the Ministry of Education will also facilitate sharing of all courses/modules and associated educational materials by releasing them under an appropriate Creative Commons (CC) license, so that they are openly accessible and shareable between key participating institutions, as well as being accessible to all schools in Antigua and Barbuda and to the broader OECS education community.

6.8. Professional learning communities and fora will be established through the national content repository to facilitate sharing of best practices and resources amongst educators and other key stakeholders.

6.9. Ensure contractually binding commitments in order to achieve objectives – needs to be linked to adjusted expectations of how time is used during working days to create space for new functions without leading to overload. These commitments should be underpinned by a requirement to engage in continuous professional development opportunities as part of their annual programmes of work.

6.10. Extensive collaboration is envisaged between stakeholders, the private sector, and public sector to provide assistance in training, infrastructure, and information sharing. A range of interventions will be required for all stakeholders: courses, workshops, conferences, self-study materials, and other forms of professional development. The initial focus in developing courses for educators will be to make available training activities that bring all educators in the country to the 'Knowledge Deepening' level on the UNESCO ICT CFT.

7. Governance

In operationalizing this policy, it is essential to facilitate collaboration between government Ministries, most notably between the Ministry of Education, Sports, Youth, and Gender Affairs and the Ministry of Telecommunications, Science and Technology, but also involving other government ministries as appropriate. Ongoing discussion is essential between

Ministries during planning stages of ICT in education to ensure more effective and sustainable implementation.

7.1.   It is noted that:

7.1.1.   The Ministry of Telecommunications, Science and Technology will be responsible for ICT infrastructure (connectivity and networking) nationally, including provision of server and hosting infrastructure for centralized platforms (including a content repository, EMIS, learning management system, and suitable social networking tools);

7.1.2.   The Ministry of Education, Sports, Youth, and Gender Affairs (through the Board of Education) will be responsible for installation and maintenance of equipment in schools, development of curriculum and content, and the training of principals and educators;

7.1.3.   All Education Officers, and particularly Curriculum Officers, within the Ministry of Education, Sports, Youth, and Gender Affairs will provide support to schools through mentoring/coaching and making available opportunities for professional development; and

7.1.4.   The Department of Teacher Education will be responsible for coordinating training and re-training of teachers in alignment with this ICT in Education Policy and in partnership with other key agencies as appropriate.

7.2.   An inter-Ministerial ICT in Education Steering Committee will be established, which comprises: the Minister of Education, Sports, Youth, and Gender Affairs (as Chair), the Minister of Telecommunications, Science, and Technology, the Minister of Finance and Information, the Permanent Secretary of the Ministry of Education; the Director of Education; the Head of the Department of Teacher Education; the Head of the Curriculum Development Unit; at least one high-level representative from each of the Ministry of Telecommunications, Science, and Technology and the Ministry of Finance and Information (to act as advisors to their respective Ministers); a representative of the Antigua and Barbuda Union of Teachers (ABUT); a representative of the National Parent Teacher Association (NPTA); one representative from the private sector; and the ICT in Education Programme Manager (ex officio).

7.3. The Steering Committee will meet at least once every six months, but meetings will also be scheduled around key milestones and key decision points.

7.4. The Steering Committee will have the following Terms of Reference:

7.4.1. Maintain ownership of the policy and oversight of implementation of all projects falling under the framework of the policy;

7.4.2. Manage and monitor a strategic ICT Integration Implementation Plan flowing from the policy, using a coherent and structured review of successes and failures to guide continuous improvement;

7.4.3. Provide final approval of project plans, ensuring that project deliverables align with the requirements of the policy and key stakeholders;

7.4.4. Approve the structure and governance of sub-committees of the Steering Committee (with three proposed sub-committees to be Infrastructure, ICT Integration and Content, and Capacity Building);

7.4.5. Approve and monitor expenditure on ICT in education;

7.4.6. Consider any strategic issues that have implications for the ICT in Education Policy and Strategic Implementation Plan

7.4.7. Resolve conflicting priorities or opinions of stakeholders to ensure consensus

8. Monitoring and Evaluation

8.1. A detailed monitoring framework will be developed to collate activities at individual schools and so track and measure progress made towards a defined set of national targets (to be included and updated annually in a Master ICT in Education Plan. This will be developed collaboratively and includes:

8.1.1. Mechanisms to measure quantitative factors such as resource allocations, student: device ratios (through suitable inventories and electronic tracking of equipment), numbers of educators trained, schools that are e-ready, schools

that have ICT, learner performance and attendance, and web use statistics;677

8.1.2. Mechanisms to measure qualitative changes such as learner and teacher attitudes to work; student achievement; perceptions to the value of interventions; new approaches to and responses regarding teaching learning administration and communication; and

8.1.3. Baseline data pertaining to school e-readiness.

8.2. The above monitoring system will be integrating into the national EMIS to facilitate capturing and analysis of data, as well as use of this monitoring data in relevant decision-making processes. Emphasis will be placed on open access to this EMIS data, as well as on providing timely feedback and recommendations required from ongoing analysis; aimed at students, teachers, and schools, with a strong focus on mentoring and support rather than top-down supervision.

8.3. Clearly defined research or evaluation projects or studies will be commissioned to investigate specific issues within the national policy, on an ongoing basis as funds allow. These may involve longitudinal tracking, deep case study reflection; collation of successes and failures within the system; and analysis of international trends or international approaches. This research and evaluation focus will be integrated into a broader STEM research agenda within Antigua and Barbuda, in line with Government's National Development Planning priorities.