



BOTSWANA
Qualifications Authority

BOTSWANA QUALIFICATIONS AUTHORITY

NCQF – ACQF REFERENCING CAPACITY BUILDING WORKSHOP

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What the presentation covers?

- BQA mandate
- Objective of the NCQF
- NCQF architecture, and its key features
- Understanding of terms – knowledge, skills, and competence as applied to NCQF level descriptors
- NCQF Classification System

WHO WE ARE - MANDATE

Botswana Qualifications Authority (BQA) is a State-Owned Enterprise (SOE) under the Ministry of Higher Education, established by the Botswana Qualifications Authority Act No 24 of 2013, to:

- » Provide for and maintain the National Credit and Qualifications Framework (NCQF)
- » Co-ordinate the education, training and skills development quality assurance system, from early childhood to tertiary level (life long learning) across all three (3) subsystems of education and training: General Education (GE), Technical and Vocational Education and Training (TVET) and Higher Education (HE).

Functionally, BQA achieves its mandate through its three (3) core departments (i.e. Quality Assurance, National Credit and Qualifications Frameworks Services and Business Development)

BQA was set up to be a catalyst for the development of a world class education and Training environment for learners in Botswana.

Objectives of the NCQF

- 1. Facilitating Lifelong Learning** – articulation and progression, RPL, Flexibility.
- 2. Enhancing Quality and Transparency** – standardization, quality assurance, transparency.
- 3. Supporting Social Inclusion and Economic Development** – equity, workforce development
- 4. Promoting Mobility (Social and Economic)** – employability, international comparability.

Key Features of The NCQF

LEVEL	GENERAL EDUCATION	TVET	HIGH EDUCATION	MINIMUM CREDIT TOTAL
10		DOCTORAL DEGREE	DOCTORAL DEGREE	360
9		MASTER'S DEGREE	MASTER'S DEGREE	240
8		BACHELOR'S DEGREE HONORS	BACHELOR'S DEGREE HONORS	120
		POST-GRADUATE DIPLOMA	POST-GRADUATE DIPLOMA	120
		POST-GRADUATE CERTIFICATE	POST-GRADUATE CERTIFICATE	60
7		BACHELOR'S DEGREE	BACHELOR'S DEGREE	360
6		DIPLOMA	DIPLOMA	240
5	CERTIFICATE V	CERTIFICATE V		120
4	CERTIFICATE IV	CERTIFICATE IV		60
3	CERTIFICATE III	CERTIFICATE III		40
2	CERTIFICATE II	CERTIFICATE II		40
1	CERTIFICATE I	CERTIFICATE I		40

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Key Features of the NCQF Architecture

- NCQF Levels (1 -10) - Qualification types (Certs, Dip, Bach, Bach Hon, Postgrad, Master, Doctoral)
- Sub framework structures (integrates GE, TVET, & HE)
- Credits (1 credit = 10 notional hours).
- NCQF Qualifications use learning outcomes – which are statements of what graduate *know*, *understand* and can *do* in a workplace context.
- Reinforcing learning outcomes are NCQF level descriptors which function to map the vertical level of complexity of a particular qualification and clarify horizontal orientation of the qualification in terms of its knowledge, skills, and competence.
- Learning outcomes are significantly impacted by Occupational profiles or standards set by labour markets.
- Qualifications are classified using NCQF Classification System into Fields, Subfields & Domains.
- There is an authority (that works with various stakeholders) to over oversee, supervise and regulate sub-frameworks.

To understand NCQF level descriptors, it is important to distinguish knowledge, skills and competence.

Anderson et al (2001)

- ***Factual knowledge*** –terminologies & specific details and elements
- ***Conceptual knowledge*** – *a.* classifications and categories, *b.* principles and generalisations, *c.* theories, models, and structures
- ***Procedural knowledge*** – *a.* subject specific skills and algorithms, *b.* subject specific techniques and methods, *c.* criteria for determining appropriate procedures
- ***Metacognitive knowledge*** – *a.* knowledge of cognitive tasks inclusive of *contextual* and *conditional* knowledge, and *b.* self – knowledge.

- To develop an understanding of how NCQF level descriptors are used to differentiate qualifications an analysis has been done below.

NCQF Level 3 vs. 5:

Level 3 involves routine tasks under supervision with basic knowledge. Level 5 requires broad technical knowledge, solving abstract problems autonomously, and supervising others – a clear jump in complexity, responsibility, and cognitive demand.

NCQF Level 7 vs. 10:

Level 7 applies specialized research skills to complex, unpredictable problems with considerable responsibility. Level 10 operates at the knowledge frontier, conducts original international-standard research, and exercises strategic leadership with full accountability – a leap from advanced practice to paradigm-shifting, self-directed scholarship.

ISCO (2008)

- *Job* - a set of tasks/ activities and duties performed
- A set of jobs with high degree of similarities make an occupation.
- Skill – ability to carry out tasks and duties of a given job.
- Examples of Skill can be cognitive, motor, cultural, entrepreneurial, transverse, hybrid, green etc.
- Occupations are classified using *skill level* and *skill specialisation*.
- *Skill level* – determined by the complexity tasks and duties in an occupation + level of educ. Education required for competent performance + level of on-the-job training .
- *Skill specialisation* – determined by four concepts; field of knowledge required, tools and machinery used, materials worked on or with, kinds of goods and services produced.

Competence

- Competence means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development (ACQF).
- Competent performance of is tied to skill level and adherence to performance standards (procedures, work policies, acts, regulations etc.).
- Key terms associated with competence are; responsibility, autonomy, initiative, context/ contingencies, social competence, professional competence, communicative competence (Cedefop (2018). *Analysis and overview of NQF level descriptors in European countries*. Luxembourg: Publications Office. Cedefop research paper; No 66.

NCQF Level descriptors

Level	Knowledge	Skills	Competence
10	Most advanced Knowledge at the frontier of a field of work or study, Advancement of frontiers of existing knowledge or professional practice in a disciplined, professional, and/or interdisciplinary discourse through research and high-level reflective practice.	Ability to undertake original and scholarly research of international standards to solve problems; the Highest level of specialized skills and techniques including critical analysis, evaluation, and synthesis of new and complex ideas to develop new knowledge and approaches or extend and redefine existing knowledge and professional practice; Ability to develop and implement a strategy for dissemination of research findings and defend the research work and outputs before a diverse audience.	Self-directed and demonstrates strategic leadership, high-level mastery of professional practice, and associated systems design, implementation, and management with full responsibility and accountability for resource management, own work output, and of others. Sustained commitment to development of new ideas and processes at the forefront of the profession, through research and high-level reflective practice, Exercises a high level of initiative, authority autonomy, and scholarly and professional integrity in a wide range of contexts.
9	Advanced knowledge at the frontier of a specialized discipline or cross-disciplinary fields. Capable of contributing towards the development of professional practice through research or reviewing existing knowledge.	Demonstrates a high level of mastery of the field of study or practice and capacity to retrieve, evaluate, analyze and interpret information to make propositions and judgments; critical analysis and evaluation of existing professional practice and ability to comprehend and put issues and ideas in perspective; Specialized research and capacity to develop and apply new skills and techniques to identify and solve problems in a range of professional contexts.	Self-directed study or work within a discipline or profession, making informed decisions with considerable authority. Demonstrates innovation, autonomy, scholarly and professional integrity; Takes responsibility for contributing to professional knowledge and practice and accountability for resource management, own work output, and of others.

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NCQF Level descriptors

Level	Knowledge	Skills	Competence
8	Highly specialized knowledge in a discipline or profession involving critical analysis and independent evaluation of qualitative and quantitative data. A grounded understanding of contemporary theories, principles, es, and concepts that can form the basis for professional judgment and/or research.	Demonstrates mastery of professional practice in a particular field of work or study. Ability to manage functions and processes. Capacity to carry out basic research, critical evaluation, and synthesis of ideas, issues, s, and concepts. Capable of identifying and solving complex and unpredictable problems.	Applies a range of advanced specialist knowledge and skills with a sense of identification with and responsibility for the integrity of the profession. Exercises autonomy, initiative, and authority and takes responsibility and accountability for own work output and of others within a field of work or study.
7	Specialized Knowledge in a field of work or study including an understanding of methods of inquiry and established codes of practice and capacity for critical analysis and interpretation of information.	Capacity to carry out processes that require the use of specialized basic and applied research skills to solve problems and manage processes within broad parameters for specified activities and work outputs.	Applies a range of advanced technical processes and skills to generate solutions to unpredictable and complex problems; Demonstrates considerable responsibility and accountability for own work output and of others within a field of work or study.

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NCQF Level descriptors

6	Advanced knowledge of a field of work or study involving an understanding of theories and principles.	Applies advanced skills and demonstrates mastery of and innovation required to identify and solve complex and unpredictable problems in a specialized field of work or study.	Demonstrate ability to select and apply technical processes and assume responsibility for the design and/or management of processes within a defined area(s) of expertise, including accountability for personal and group outcomes.
5	Broad technical knowledge and understanding of underlying concepts and principles as well as standard codes of practice within a field of work or study.	Capacity to apply a broad range of cognitive and practical skills required to solve abstract problems in a relevant occupation or profession	Performs complex work and demonstrates autonomy, self-direction, accountability, and responsibility for related work outputs with the potential to supervise the work/learning of others.
4	Broad knowledge of practical concepts, processes, and capacity to interpret information to make informed judgments of concrete, abstract, and often unfamiliar problems.	Capacity to perform a significant range of practical and cognitive tasks. Ability to select and use relevant procedures and techniques to solve a variety of concrete, abstract and unfamiliar problems.	Demonstrates independence, responsibility, and accountability for own work/learning and potential for supervisory functions

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NCQF Level descriptors

3	Basic operational and theoretical knowledge of a field of work or study and the ability to interpret basic information.	Demonstrates a range of basic cognitive and practical skills and can perform a range of tasks or standard processes in a specific field of work or study using basic methods, tools, and materials.	Performs routine work under supervision and takes some responsibility for own learning and completion of work.
2	Basic factual knowledge and capacity to interpret basic information.	Demonstrates basic cognitive and practical skills and capacity to perform basic tasks using simple tools.	Works under close supervision in structured contexts.
1	Elementary knowledge associated with literacy, numeracy, and cognitive faculties required to carry out simple tasks.	Demonstrates elementary skills required to perform simple and familiar tasks using simple tools.	Works under direct guidance and supervision in highly structured contexts

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Skill (cont'd)

Skill level 1

- Nature of work - executing of simple and routine physical or manual tasks, using hand held tools, like shovels, simple electrical equipment, such as vacuum cleaners, sorting, storing or assembling goods by hand operating non motorized vehicles, picking fruits and vegetables.
- *Learning required* – completion of primary education + on-the-job-training
- *Occupations classified here* – office cleaners, freight handlers, gardeners, laborers, kitchen assistants.

Skill level 2

- Nature of work - executing tasks such as operating machinery and electronic equipment, driving vehicles. Maintenance/repair of mechanical equipment etc., as such require manual dexterity. Requires ability to read info. Such safety instructions, keep records, perform simple additions, subtractions and divisions. Such occupations may need advanced literacy and numeracy skills, and good interpersonal communication skills.
- *Learning required* – completion of senior secondary education, or some cases completion of specific education after secondary educ, OR on the job training may substitute for formal education.
- *Occupations classified here* – butchers, sewing machinists, shop assistants, police officers, hairdressers, motor vehicle mechanics, building electricians etc.

Skill levels (cont'd)

Skill level 3

Nature of work – performance of complex technical and practical tasks requiring extensive factual, technical, and procedural knowledge in a specialised field. Typical tasks – ensuring compliance to health and safety regulations, preparing estimates of quantities, and costs of materials and labour for given projects, coordinating, supervising, controlling and supervising workers, performing technical functions in support of professionals.

Learning required – completion of 1-3 years of tertiary training following secondary education, and extensive work experience and on-the-job experience may substitute for formal education.

Occupations classified here – shop managers, medical laboratory technicians, legal secretaries, commercial sales representatives, diagnostic medical radiographers, computer technicians, broadcasting and recording technicians.

Skill level 4

Nature of work – complex problem solving, decision-making and creativity based on extensive theoretical knowledge in a specialised field, research to extend body of knowledge in a field, imparting knowledge to others. Requires extended levels of literacy and numeracy, excellent interpersonal communication skills, understanding complex written material and complex communication of ideas in media such as books, images, performances, report, and oral presentations.

Learning required; 3-6 years of tertiary training education leading to first degree or higher qualification, in some cases extensive work experience and on-the-job training may substitute for formal education.

Occupations classified here – sales and marketing specialists, engineers, secondary school teachers, medical practitioners, musicians, computer system analysts etc.

Criteria for grouping qualifications and learning programmes is based on subject matter approach.

- a. Theoretical knowledge
- b. Purpose of learning
- c. Objects of study
- d. Methods and techniques
- e. Tools and equipments

NCQF Classification System

Field of learning	Subfields of learning	Domains of learning
1. Agriculture and Nature Conservation	1.1 Crop Production	1.1.1 Agronomy 1.1.2 Horticulture 1.1.3 Landscaping
	1.2 Animal Production	1.2.1 Fisheries 1.2.2 Veterinary 1.2.3 Livestock Production
	1.3 Nature Conservation	1.3.1 Forestry and Wood Technology 3.4.1 Sports and Leisure
2. Business, Commerce and Management Studies	2.1 Finance	2.1.1 Finance, Banking and Insurance
	2.2 Accounting	2.2.1 Accounting and Taxation
	2.3 Management	2.3.1 Management and Administration 2.3.2 Marketing and Advertising 2.3.3 Secretarial and Office Work 2.3.4 Wholesale and Retail Sales 2.3.5 Work Skills

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Field of learning	Subfields of learning	Domains of learning
3. Culture, Arts and Crafts	3.1 Design Studies	3.1.1 Fashion Design 3.1.2 Interior Design 3.1.3 Industrial Design
	3.2 Visual Arts	3.2.1 Audio-visual Techniques and Media Production 3.2.2 Fine Arts 3.2.3 Photography 3.2.4 Crafts
	3.3 Performing Arts	3.3.1 Music 3.3.2 Drama and Theatre 3.3.3. Dance
	3.4 Sport and Recreation	3.4.1 Sports and Leisure
4. Education and Training	4.1 Education Science	4.1.1 Education Science
	4.2 Education	4.2.1 Adult Education 4.2.2 Curriculum Development in Non-Vocational and Vocational Subjects 4.2.3 Educational Assessment, Testing and Measurement 4.2.4 Lifelong Learning
	4.3 Training	4.3.1 Teacher Training for Kindergarten,

NCQF Classification System

Field of learning	Subfields of learning	Domains of learning
5. Generic Skills	5.1 General Education Qualifications	5.1.1 General Education Qualifications
	5.2 Literacy and Numeracy	5.2.1 Literacy and numeracy
	5.3 Personal Development	5.3.1 Personal development
6 Health and Social Services	6.1 Health Science	6.1.1 Dental studies 6.1.2 Medicine 6.1.3 Nursing and Midwifery 6.1.4 Medical Diagnostic and Treatment Technology 6.1.5 Therapy and Rehabilitation 6.1.6 Pharmacy
	6.2 Social Services	6.2.1 Care of the Elderly and of Disabled Adults 6.2.2 Childcare and youth services 6.2.3 Social work and counselling

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7. Humanities and Social Sciences	7.1 Humanities	7.1.1 Religion and Theology 7.1.2 History and Archaeology 7.1.3 Philosophy and Ethics
	7.2 Languages	7.2.1 Language Acquisition 7.2.2 Literature and Linguistics
	7.3 Social and Behavioural Sciences	7.3.1 Economics 7.3.2 Political sciences and Civics 7.3.3 Psychology 7.3.4 Sociology and Cultural Studies
	8.1 Information Technology	8.1.1 Computer use and Information Technology 8.1.2 Database and Information Systems 8.1.3 Network Design and Administration 8.1.4 Software and Applications Development and Analysis
	8.2 Media Technology	8.2.1 Internet Technologies
	8.3 Communication Technology	8.3.1 Telecommunications 8.3.2 Broadcasting

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8. Information and Communication Technology	8.1 Information Technology	8.1.1 Computer use and Information Technology 8.1.2 Database and Information Systems 8.1.3 Network Design and Administration 8.1.4 Software and Applications Development and Analysis
	8.2 Media Technology	8.2.1 Internet Technologies
	8.3 Communication Technology	8.3.1 Telecommunications 8.3.2 Broadcasting

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9. Law and Security	9.1 Law	9.1.1 Justice in Society
	9.2 Security	9.2.1 9.2.1 Sovereignty of the State
10. Manufacturing, Engineering and Technology	10.1 Engineering and engineering trades	10.1.1 Chemical Engineering and process 10.1.2 Environmental Protection Technology 10.1.3 Electricity and Energy 10.1.4 Electronics and Automation 10.1.5 Mechanics and Metal Trades 10.1.6 Motor Vehicles, and Aircraft
	10.2 Manufacturing and processing	10.2.1 Food processing 10.2.2 Materials (Glass, Paper, Plastic and Wood) 10.2.3 Textiles (Clothes, Footwear and leather)

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11 Mining	11.1 Mining engineering 11.2 Mineral processing 11.3 Geomechanics 11.4 Gas and Petrol Chemical Industry Engineering 11.5 Reservoir Engineering	11.1.1 Excavation 11.2.1 Metallurgy 11.3.1 Geology

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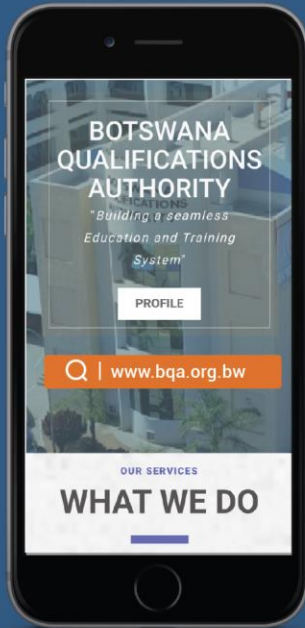


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12 Natural, Mathematical and Life Sciences	12.1 Biological Sciences	12.1.1 Biology sciences 12.1.2 Biochemistry and Biotechnology 12.1.3 Ecology and Evolution 12.1.4 Marine Science 12.1.5 Genetics 12.1.6 Microbiology 12.1.7 Zoology and Animal Sciences 12.1.8 Cell Biology 12.1.9 Botany
	12.2 Environmental chemistry	12.2.1 Atmospheric Chemistry 12.2.2 Geochemistry 12.2.3 Environmental Modelling 12.2.4 Pollution studies 12.2.5 Environmental Toxicology
	12.3 Social Sciences/Environment Management sciences	12.3.1 Human Geography 12.3.2 Environmental Policy 12.3.3 Rural Development 12.3.4 Population Geography 12.3.5 Environmental Law 12.3.6 Range resource management 12.3.7 Water resource management 12.3.8 Environmental/Resource/Ecological Economics 12.3.9 Wildlife management 12.3.10 Disaster Management 12.3.11 Land use Planning 12.3.12 Environmental auditing 12.3.13 Tourism development

13 Physical Planning and Construction	13.1 Architecture	13.1.1 Architecture and Town Planning 13.1.2 Building and construction
	13.2 Building construction	13.2.1 Construction Management 13.2.2 Construction Processes
14. Services	14.1 Personal Services	14.1.1 Domestic Services 14.1.2 Hair and Beauty Services 14.1.3 Hotel, Restaurants and Catering 14.1.4 Travel, Tourism and Leisure
	14.2 Hygiene and Occupational Health Services	14.2.1 Community Sanitation 14.2.2 Occupational Health and Safety
	14.3 Transport Services	14.3.1 Transport Services
	14.4 Security Services	14.4.1 Protection of Persons and Property 14.4.2 Military and Defence 14.4.3 Safety in Society

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"Building a seamless Education and Training System"



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THANK YOU!