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**Annex 1**

**Assessment Tables**

The following tables list factors to consider when assessing the capacity of health workforce education. For all tables, the factors are drawn from published and unpublished monitoring and evaluation literature and frameworks.

The first table focuses on describing the educational institution and academic program or programs that will be assessed. The remaining tables are organized into nine thematic areas: students, educators, school management, facilities and infrastructure, materials and equipment, curriculum, clinical practice, quality assurance, and partnerships and exchange. In the thematic area tables, items with an asterisk (\*) indicate a gender focus, with the aim of overcoming gender discrimination in health workforce education.

**Description of the Educational Institution and its Academic Programs**

|  |  |
| --- | --- |
| **Attribute** | **Factors to consider: Institution/Program(s)** |
| Ownership and structure of the institution | * Type of ownership (public, private, or public/private mix); if private: for profit or not for profit * Primary governing ministry (education, health, other) * Within a larger institution (such as a university) or standalone school/college * Organogram of the institution |
| Types of programs | * Types of certificate, diploma, degree or other programs offered by the faculty or school targeted for the bottlenecks assessment (e.g., medicine, nursing, midwifery, pharmacy, physical therapy) * Length of each program in years (or months) * Year in which practical training begins in each program |
| Prerequisite education | * Level/number of years of education required to enter each program under review * Previous certificate, diploma, degree, or other credentials required to enter each program that will be assessed |
| Postgraduate education | * Presence of postgraduate education programs in the institution * Purpose of the postgraduate programs |

**Area 1: Students**

| **Code** | **Attribute** | **Factors to consider: Students** |
| --- | --- | --- |
| 1.1 | Number of students | * Total number of students currently enrolled in each program under review * Proportion who are international students |
| 1.2 | Attraction | * Mechanisms used to attract students into the profession (female/male, rural areas, disadvantaged groups) * Number of new applicants in the past 1 to 5 years * Application rate, per cadre: defined as the number of applicants per training place or seat available per cadre (over a given period) * Factors that attract students to the profession |
| 1.3 | Selection | * Number and proportion of applicants accepted into a specific program (proportion is the number accepted/number who applied) * Criteria used for students’ selection * Stakeholders involved in students’ selection * Presence of gender-related criteria in student selection\* |
| 1.4 | Admissions | * Maximum capacity for new student admissions in each program * Number of new students admitted in the past 1 to 5 years * Sex ratio (male/female) for new admissions\* * Presence of recruitment and/or admissions policy * Presence of a system that takes into account prior learning and experience of applicants * Geographical origin (proportion of students from rural areas) for new admissions * Proportion of students from disadvantaged families (i.e., low socioeconomic status) for new admissions * Number of students applying to the same institution for postgraduate studies * Proportion of students from the same institution admitted to the postgraduate programs |
| 1.5 | Retention/throughput | * Number of students who dropped out in the last 1 to 5 years (depending on availability of data) * Dropout or attrition rate (number of students who enrolled in year t multiplied by 100/number of students who graduated in year t plus the number of years in the program of study, OR 1 minus the graduation rate) * Number of students who repeated a year of study in the last 1 to 5 years (depending on availability of data) * Repetition rate (number of students repeating a level of study or course/number of students originally enrolled in the level of study or course at the beginning of the year) * A system in place for student support and retention, such as student counseling services, financial assistance, flexible academic schedule for pregnant students or students with young children, other gender-related considerations such as distance and transportation to clinical practice facilities and dormitories\* * Reasons for dropping out * Presence of sexual harassment policy for students\* * Number of sexual harassment reports made by students in the last year\* |
| 1.6 | Graduation, licensure, and deployment | * Number of students who graduated each year by program over the last 1 to 5 years (depending on the length of the program and availability of data) * Sex distribution of students that graduate per program in the past 5 years (or the number of years equal to the length of each program)\* * Graduation rate (number graduating/number in original cohort plus number who transferred in minus number who transferred or dropped out, OR number who graduated/number who entered the final year of studies) * Education success rate (number of students who graduated/number of students in original admissions cohort) * Number and proportion of graduates who passed the licensure or certification exam in the past 2 to 5 years * Proportion of graduates who registered for practice * Support to graduates for certification, registration, and deployment, including job boards and career fairs * System to track and connect with alumni, including surveys of graduates to assess where graduates are working and what kinds of jobs they are taking * Number and proportion of graduates who were employed in the health labor market within 3 months of graduation in the past 2 to 5 years |

**Area 2: Educators**

| **Code** | **Attributes** | **Factors to consider: Educators** |
| --- | --- | --- |
| 2.1 | Quantity | * Number of educators by type, age group, and sex, including faculty, teachers, and preceptors * Sex ratio of educators\* * Proportion (%) of foreign educators * Number of guest educators * Number of unfilled posts by type of educator * Number of unfilled posts by type of subject (theory/clinical) * Proportion of educators by type who are part-time, defined as less than 90% (e.g., faculty, teachers, preceptors) * Proportion of educators by type who are full-time * Average ratio of teacher to students (full-time) for classroom, demonstration room/skills lab, and clinical practice (compared to national standards, if they exist) * Perceived availability of educators * Sufficient size and composition of teaching staff to provide teaching and guidance to ensure student progress |
| 2.2 | Development (to become educators) | * Availability, quality, and appropriateness of training programs for educators |
| 2.3 | Attraction and recruitment | * Presence of a recruitment policy or plan * Presence of gender-related criteria in recruitment of educators\* * Presence of job descriptions for theoretical and clinical educators * Factors that attract health workers to become educators |
| 2.4 | Retention | * Turnover rates of educators by type over the last 2 to 5 years (number of educators who left/number of new educators who arrived, multiplied by 100) * Average number of years of service * Average age of teaching staff * Factors that retain health workers in educator positions * Presence of policies and systems to retain educators (e.g., sound induction program, competitive salary, benefits, recognition and rewards, promotion and tenure, research opportunities, publications, continuing professional development, performance incentives) * Presence of gender-related policies and systems to retain educators (e.g., maternity leave, flexible working schedule for pregnant educators or educators with young children, child care benefits, unpaid leave for personal reasons)\* * Presence of sexual harassment policy for educators (see students) \* * Methods to create awareness and implementation of sexual harassment policy (display on notice boards, regular trainings to faculty, sensitization programs offered) * Number of sexual harassment reports made by educators in the past 5 years\* |
| 2.5 | Quality/expertise in subject matter | * Number of years of postsecondary education required to become a qualified educator (e.g., faculty, teacher, preceptor) * Number of educators by educational qualification (e.g., diploma, degree, master’s degree, doctorate), including faculty, teachers, and preceptors * Number of fully qualified faculty/teachers/preceptors * Number of educators with postgraduate level of education * Proportion of educators by type (faculty, teachers, preceptors) who are fully qualified; the institution or government should provide a definition of fully qualified to include in the study instruments * Proportion of educators teaching postgraduate students * Proportion of educators who also work as clinicians in health services * Perceived quality of educators |
| 2.6 | Quality/ability to teach | * Proportion of educators by type (e.g., teachers, faculty, preceptors) with training in pedagogy/teaching/learning approaches and methods * Ability of educators to develop and revise their programs |
| 2.7 | Continuing professional development (CPD) | * Presence of a staff development policy and/or plan at the institutions * Presence of CPD opportunities for teachers/faculty/preceptors (within and outside the institution) * Proportion of educators who participated in CPD courses in the past 2 years * Proportion of educators who presented at an international conference in the past 2 years |
| 2.8 | Research | * Proportion of educators engaged in research projects * Proportion of original publications in leading journals to number of educators/faculty |

*Note: Educators are all those involved in delivering the educational program. They include classroom teachers, simulation instructors, facilitators of problem-based or case-based learning, as well as clinical preceptors or supervisors.*

**Area 3: Management**

| **Code** | **Attributes** | **Factors to consider: Management** |
| --- | --- | --- |
| 3.1 | Financial management | * Funding sources (proportion of overall income) by category (e.g., tuition and fees, grants, research, service delivery, alumni donations) * Dependability of funding * Annual expenditures (proportion of overall expenditures) by category (e.g., salaries, student services, student scholarships and bursaries, maintenance, equipment and supplies, utilities, transportation) * Shortfall or carryover in the last two years * Proportion of students with scholarships, grants, or loans * Budget allocation and budget control meets program, lecturer, and student needs   Possible supplemental measures:   * Proportion of budget allocated for postgraduate studies * Sources of funding for postgraduate studies * Sources of funding for research |
| 3.2 | Absorptive capacity | * Ability to manage new investments |
| 3.3 | Leadership and governance | * Type and composition of governing structures * Written, public institutional vision, mission, values, and objectives * Responsiveness to student and faculty concerns * Qualifications of the head of the school or department, including leadership, administration, management, and education training and experience * Sex ratio within management\* |
| 3.4 | Human resources management | * Human resources policy in place * Performance appraisal or evaluation system for all staff in place * Sufficient administrative, support, and management staff—including a senior finance officer—to support the activities of the school |
| 3.5 | Monitoring, self-assessment, and evaluation | * System for self-assessment of institutions * Internal satisfaction surveys conducted to assess bottlenecks * Independent evaluations done |

**Area 4: Facilities and Infrastructure**

| **Code** | **Attributes** | **Factors to consider: Facilities and infrastructure** |
| --- | --- | --- |
| 4.1 | Lecture rooms/ classrooms | * Number of classrooms/lecture rooms * General condition: adequacy of the physical structure, space, ventilation, electricity, heating/cooling, water, and toilets * Additional number needed * Number of students that classrooms/lecture rooms can accommodate—total number of seats * Accessibility/distance |
| 4.2 | Skills labs/ demonstration rooms/ clinical simulation labs | * Number of skills labs/demonstration rooms * General condition: adequacy of the physical structure, space, ventilation, electricity, heating/cooling, water, and toilets * Additional number needed * Number of students that skills labs can accommodate—total number of seats * Accessibility/distance * (See Area 5 for equipment) |
| 4.3 | Library or learning resource center | * Number of libraries * General condition: adequacy of the physical structure, space, ventilation, electricity, heating/cooling, water, and toilets * Additional number needed * Number of student seats * Number of full-time and part-time librarian(s) * Stock and quality of books, journals, electronic materials * Accessibility/distance |
| 4.4 | Computer room or lab | * Number of computer labs or rooms * General condition: adequacy of the physical structure, space, ventilation, electricity, heating/cooling, water, and toilets * Additional number needed * Number of students who can be seated in each computer room—total number of seats * Number of full-time and part-time computer technician(s) * Accessibility/distance * (See Area 5 for teacher/student access to personal computers) |
| 4.5 | Lodging/dormitories | * Number of dormitories (number of spaces for females, number of spaces for males)\* * General condition: adequacy of the physical structure, space, ventilation, electricity, heating/cooling, water, and toilets * Additional number needed * Number of beds |
| 4.6 | Canteen/cafeterias | * Number of canteens or cafeterias * General condition: adequacy of the physical structure, space, ventilation, electricity, heating/cooling, water, and toilets * Additional number needed * Accessibility/distance |
| 4.7 | Internet | * Availability of Internet to students and educators (locations, quality of Internet connection in terms of speed/bandwidth) * Average number of hours of access per week for students and educators |
| 4.8 | Security | * System in place to ensure the safety and welfare of students and educators * Presence of locks on doors and windows * Wall/fence * Security guard * Functioning lights |

**Area 5: Materials and Equipment for Educators and Students**

| **Code** | **Attributes** | **Factors to consider: Materials and equipment for educators and students** |
| --- | --- | --- |
| 5.1 | Skills lab | * Availability and quality of educational equipment (e.g., anatomical models, clinical simulators) * Number of equipment by type * (See Area 4 for skills lab infrastructure) |
| 5.2 | Clinical practice | * Availability and quality of equipment and consumables (e.g., gloves, thermometers, weight scales, gauze, bed pans, soap, detergents, antiseptics, syringes, blood pressure cuffs, stethoscopes, otoscopes, ophthalmoscopes, reflex hammers, lab coats) * Number of materials and equipment by type * (See Area 7 for clinical practice infrastructure) |
| 5.3 | Textbooks, journals, and learning materials | * Availability and quality of up-to-date learning materials (e.g., textbooks, technical journals, electronic journals) * Number of technical journals subscribed to * Number of library books per student (number of library books/number of students) * Mode of student and educator access to required textbooks and learning materials (purchase, borrow, download) * Satisfaction with the quantity, quality, and affordability of textbooks and learning materials |
| 5.4 | Computers and projectors | * Number of computers and number connected to the Internet * Number of projectors * Proportion of students and educators who own a personal computer * Proportion of teachers and students who use a computer at least once per week * (See Area 4 for computer labs and Internet connection) * (See Area 6 for eLearning) |

**Area 6: Curriculum**

| **Code** | **Attributes** | **Factors to consider: Curriculum** |
| --- | --- | --- |
| 6.1 | Adapted to population health needs and national HRH policies and strategies | * Primary health care included in curriculum (i.e., in theoretical courses, clinical courses, and clinical experiences in community or primary health centers) * Presence of functional curriculum evaluation and revision committee * Stakeholders in curriculum review committee * Frequency of meetings of the committee * Feedback from student, health service, and other stakeholders included in the curriculum evaluation and revision processes * Process, such as a situation analysis, regularly used to review health care needs of the local community and incorporate into revised curriculum * Number and frequency of curriculum updates or revisions in the past 5 years * Perceived quality and relevance of graduates |
| 6.2 | Use of information and communication technologies/eLearning | * Use of electronic materials, multimedia, and web-based tools for learning (e.g., eBooks, online journals) * Use of computerized learning programs (e.g., interactive learning software) * Use of computers or information technologies for distance learning (e.g., video lectures, satellite transmission of clinical procedures/eHealth, webinars, online discussion groups) * (See Areas 4 and 5 for computer labs, computer use, and access to Internet) |
| 6.3 | Learning methods/ approaches | * Clearly defined knowledge and skill outcomes of the program * Use of effective approaches to teaching and learning, including, but not limited to, adult education, self-directed learning, eLearning, and clinical simulations * Availability of service learning projects, community service projects * Ability to pilot curricular innovations * Use of interprofessional teamwork approaches in classrooms and clinical learning programs |
| 6.4 | Development of practical skills | * Ratio of theory/classroom versus practice/skills lab or clinical components of the curriculum by program * Sufficient opportunities and time for students to work with patients (number of hours spent in patient care per week) * Includes development of clinical reasoning, problem solving, and critical and reflective thinking * Proportion of students with confidence in their level of clinical skills * Adequate duration of clinical practice * Adequate variety of patients seen * Other skills taught to students such as evidence-based care, patient-centered care, team communication, leadership, quality improvement, error detection, system-based learning, motivational interviewing, etc. * Internship opportunities for students, placement in rural areas |
| 6.5 | Research | * Research a topic within the curriculum * Opportunities for students to conduct research * Proportion of students conducting research * Methods of translation of research into practice |
| 6.6 | Student assessment | * Assessments pertinent to local/community health needs * A system in place for the formative and summative assessment of the program’s educational and clinical objectives and outcomes * Students assessed for knowledge and skill development throughout the programs using reliable assessment methodologies * Written list of competencies available that each student has to accomplish |

**Area 7: Clinical Practice**

| **Code** | **Attributes** | **Factors to consider: Clinical practice** |
| --- | --- | --- |
| 7.1 | Sites/facilities | * Number of clinical practice sites by type to support learning in diverse settings (e.g., hospital, outpatient clinic, community clinic) * Distance to practice sites, by type, from the school (range) * Number and variety of patients or clients (visits and admissions per month) * Presence of formal agreements or partnerships between the faculty or school and the clinical facilities to secure a variety of qualified people to be preceptors and clinical supervisors * Quality and safety of transportation to clinical practice sites * Quality and safety of clinical practice sites |
| 7.2 | Supervision/ instruction | * Number of clinical preceptors employed by the faculty, school, or department * Number of clinical preceptors employed by the clinical facilities * Proportion of student time at clinical sites spent under the supervision of a qualified clinical preceptor or instructor * Average student-to-supervisor, preceptor, or instructor ratio (see Area 2 above) * Quality of supervision, teaching, practice, and assessment (e.g., hands-on practice versus observation only, structured practice versus random cases) * Training and qualifications required to be a clinical supervisor or preceptor (see Area 2.5 and 2.6 above) * Presence of policies and opportunities for professional development for preceptors and clinical instructors/supervisors at training clinics (see Area 2) * Awareness about policy for CPD * Rewards, recognition, and incentives for preceptors |
| 7.3 | Duration | * Year in which clinical practice begins by program * Total number of hours of clinical practice by program * Sufficiency/adequacy of time spent at clinical practice site |

**Area 8: Quality Assurance**

| **Code** | **Attributes** | **Factors to consider: Quality assurance** |
| --- | --- | --- |
| 8.1 | Accreditation of educational institutions | * Mechanisms used to ensure the quality of graduates * Accreditation of the faculty, school, or department by a credible and relevant accreditation body * Date last accredited * Accreditation of clinical practice sites by a credible and relevant accreditation body * Existence of standards that hinder or prevent the institution from achieving its educational goals (standards from governing professional councils or higher education authorities)   Possible supplemental measures (e.g., desk review):   * Standards used for accreditation (process used and stakeholders involved in updating the standards) |
| 8.2 | Licensure or certification of graduates | * Proportion of students who passed the final exam in the previous year, by program * Proportion of graduates who passed the certification/licensure exam in the previous year, by program (see Area 1: Students)   Possible supplemental measures (e.g., desk review):   * Date that the certification exam was last updated (process used and stakeholders involved in updating the exam) |
| 8.3 | Scopes of practice | * Presence of legal document defining the scope of practice * Scopes of practice are referred to when revising or updating curricula and courses     Possible supplemental measures (e.g., desk review):   * Date that relevant scopes of practice for the program(s) under review were last updated |

**Area 9: Partnership and Exchange**

| **Code** | **Attributes** | **Factors to consider: Partnership and Exchange** |
| --- | --- | --- |
| 9.1 | Faculty exchange | * Number of faculty members who participated in exchange opportunities for the last 3 years (for teaching, postgraduate studies, research) |
| 9.2 | Student exchange | * Number of students who participated in exchange opportunities for the last 3 years (for undergraduate studies, postgraduate studies, research) |
| 9.3 | Twinning, networks, or partnerships with other education and training institutions | * Number and types of partnerships (e.g. teaching, research, curriculum development, national, international) * Types of infrastructure, facilities, equipment, materials, and expertise shared |
| 9.4 | Collaboration or partnership within the same institution (i.e., between schools or departments within the same institution) | * Interprofessional and interdisciplinary collaboration with other health professions and other disciplines (such as business) within the same institution * Types of infrastructure, facilities, equipment, or materials shared * Collaboration between undergraduate and postgraduate programs |
| 9.5 | Collaboration or partnerships with clinical facilities and communities | * Number of formal partnerships (memoranda of understanding) established between the school and clinical facilities or communities (see Area 7: Clinical practice) * Relationship with future employers of graduates |
| 9.6 | Partnerships with professional councils and associations | * Presence of agreements with professional councils and associations * Role of regulatory bodies and accreditation agencies in education |

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