Supplementary Table 8. List of publications included in the review by typology

Original Research: Learning & Evaluation (from research initiatives)

17. Heller RF, Machingura PI, Musa BM, Paramita S, Myles P: Mobilising the alumni of a Master of Public Health degree to build research and development capacity in low- and middle-income settings: the Peoples-university. Health research policy and systems 2015, 13(71):


27. Bennett S, Corluka A, Doherty J, Tangcharoen satthien V: Approaches to developing the capacity of health policy analysis institutes: a comparative case study. *Health research policy and systems* 2012, 10(7):


Original Research: Capacity Assessment


40. Motari M, Ota MO, Kirigia JM: Readiness of ethics review systems for a changing public health landscape in the WHO African Region Ethics in Biomedical Research. BMC medical ethics 2015, 16(1).

41. Oliver S, Bangpan M, Stansfield C, Stewart R: Capacity for conducting systematic reviews in low- and middle-income countries: a rapid appraisal. Health research policy and systems 2015, 13(23):


**Original Research: HRCS Methods**


**Original Research: HRCS Evidence Synthesis**


**Original Research: Miscellaneous**
Commentary


98. Kombe F: Enhancing quality and integrity in biomedical research in Africa: An international call for greater focus, investment and standardisation in capacity strengthening for frontline staff. *BMC medical ethics* 2015, 16(1).


139.Manabe YC, Katabira E, Brough RL, Coutinho AG, Sewankambo N, Merry C: Developing independent investigators for clinical research relevant for Africa. Health research policy and systems 2011, 9(44):


**Systematic Review**


<table>
<thead>
<tr>
<th>Subject Defined</th>
<th>Capacity Term</th>
<th>Definition &amp; Source</th>
<th>Cited In</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Research Capacity</td>
<td>Building [30]</td>
<td>“an ability of individuals, organisations or systems to perform and utilise health research effectively, efficiently and sustainably” [70]</td>
<td>[30, 70]</td>
</tr>
<tr>
<td>Strengthening [70]</td>
<td>“the ability to define problems, set objectives and priorities, build sustainable institutions and organisations, and identify solutions to key national health problems” [1]</td>
<td>[70]</td>
<td></td>
</tr>
<tr>
<td>Building [166]</td>
<td>“a strategy that is implemented worldwide to improve the ability of developing countries to tackle the persistent and disproportionate burdens of disease they face” [2]</td>
<td>[123]</td>
<td></td>
</tr>
<tr>
<td>Strengthening [74, 126]</td>
<td>“the process required for building capacity in health research would be define the institutional systems needed to support research, enumerate existing and missing resources and improve research support by addressing the identified gaps” [70]</td>
<td>[45]</td>
<td></td>
</tr>
<tr>
<td>Development</td>
<td>“the level of expertise and resources needed for the production of new knowledge and its application” [3]²</td>
<td>[48]</td>
<td></td>
</tr>
<tr>
<td>Strengthening</td>
<td>“an approach to the development of sustainable skills, organisational structure, resources and commitment to health improvement...to multiply health gains many times over” [4]³</td>
<td>[139]</td>
<td></td>
</tr>
<tr>
<td>Building</td>
<td>“a systematic, purposeful and goal-oriented effort to strengthen human resources and infrastructure to enable local scientists and institutions to become independent and responsive to existing and emerging health needs and threats” [97]²</td>
<td>[97]</td>
<td></td>
</tr>
<tr>
<td>Research Capacity</td>
<td>Building [164]</td>
<td>“the ongoing process of empowering individuals, institutions, organisations, and nations to: define and prioritise problems systematically; develop and scientifically evaluate appropriate solutions; and share and apply the knowledge generated” [164]⁴</td>
<td>[29, 123, 159, 164]</td>
</tr>
<tr>
<td>Strengthening [16, 72]</td>
<td>“process of individual and institutional development which leads to higher levels of skills and greater ability to perform useful research” [5]</td>
<td>[16, 72]</td>
<td></td>
</tr>
<tr>
<td>Development [4]</td>
<td>“the process by which individuals, organisations, and societies develop abilities (individually and collectively) to perform functions effectively, efficiently and in a sustainable manner to define problems, set objectives and priorities, build sustainable institutions and bring solutions to key national problems” [6]</td>
<td>[4, 31, 74]</td>
<td></td>
</tr>
<tr>
<td>Strengthening [31, 74]</td>
<td>“the ability to conduct, manage, disseminate, and apply research in policy and practice” [132]</td>
<td>[132]</td>
<td></td>
</tr>
<tr>
<td>Building</td>
<td>“Includes any efforts to increase the ability of individuals and institutions to undertake high-quality research and to engage with the wider community of stakeholders” [91]</td>
<td>[91, 96]</td>
<td></td>
</tr>
<tr>
<td>Building [91, 96]</td>
<td>“a long-term process that requires a systematic and inter-sectoral approach to developing appropriate regulatory frameworks, building and maintaining physical infrastructure, and investing in human resources, equipment and training in an environment conducive to research commitment and institutional support” [8]</td>
<td>[91, 96]</td>
<td></td>
</tr>
<tr>
<td>Strengthening</td>
<td>“consists of two main closely inter-related and inter-dependent activities, which, together, form the basis of institutional development. The two parts are: improving, through appropriate training, the capabilities of scientists to undertake quality research; improving institutional support – equipment, supplies and other logistic support to the institution in which the trained scientists have to work” [165]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building</td>
<td>“strengthening the abilities of individuals, institutions, and countries to perform research functions, defining national problems and priorities, solving national problems, utilizing the results of research in policy making and programme delivery.” [9]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strengthening</td>
<td>“goes beyond facilitating or funding a research project to the broader objectives of nurturing the prerequisites of the research process, such as state and institutional support, specialized training, infrastructural development, networking opportunities, publications and career paths.” [79]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building</td>
<td>“a deliberate effort to augment health and social science research outputs as well as human capital, so as to favourably impact upon a research focus area” [166]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Strengthening | “process through which people, organisations, and society as a whole are enabled to shape their own development and adapt it to changing conditions and frameworks” [12] |
| Building     | “process of improving individual skills, processes, and structures at the organisational level and the networks and context in which the organisation functions” [65] |

| Building   | “a process that improves the ability of a person, group, organisation or system to meet its objectives or perform better” [10] |
| Building   | “the process of helping communities and organisations harness human, technical and financial resources, which allows them to respond adequately to health issues in ways that inform such policies” [11] |
| Strengthening | “process through which people, organisations, and society as a whole are enabled to shape their own development and adapt it to changing conditions and frameworks” [12] |
| Strengthening | “process of improving individual skills, processes, and structures at the organisational level and the networks and context in which the organisation functions” [65] |

| Building   | “helping recipient countries to invent, develop and maintain institutions and organisations which are capable of learning and bringing about their own transformation, so that they can play a dynamic role in supporting national development processes” [13] |
| Strengthening | “the ability of individuals or groups to perform tasks in a sustainable manner” [47] |

| Organisational capacity Development | “the capacity of research departments in universities, think tanks and so on to fund, manage and maintain themselves” [14] |

| Progress Building [142] Development [143] | “ability to understand, interpret, select, adapt, use, transmit, diffuse, produce and commercialise scientific and technological knowledge in ways appropriate to culture, aspirations and level of development” [15] |

1. Numbered citations in italics pertain to the reference list in Supplementary Table 1. Numbered citations in normal (non-italicised) font are listed below. 2. Presented as a definition of ‘Health Systems Research’ capacity. 3. Presented as a definition of ‘research capacity’ in citing publication, but included in the ‘health research capacity’ definition list as contains specific reference to ‘health research’. 4. Cited as definition of ‘health’ research capacity in [123]. 5. Presented as a definition of ‘capacity’ in citing publication, but included in the ‘research capacity’ definition list as contains specific reference to ‘research’
List of References (not included in Supplementary Table 1)

### Supplementary Table 10. Content analysis of capacity definitions by capacity term

<table>
<thead>
<tr>
<th>Subject Defined</th>
<th>Capacity Term</th>
<th>Content Domains[^2]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Research Capacity</td>
<td>Building [139]</td>
<td>x</td>
</tr>
<tr>
<td>Health Research Capacity</td>
<td>Building [97]</td>
<td>x</td>
</tr>
<tr>
<td>Research Capacity</td>
<td>Building [132]</td>
<td></td>
</tr>
<tr>
<td>Research Capacity</td>
<td>Building [91, 96]</td>
<td>x</td>
</tr>
<tr>
<td>Research Capacity</td>
<td>Building [130]</td>
<td>x</td>
</tr>
<tr>
<td>Research Capacity</td>
<td>Building [46]</td>
<td>x</td>
</tr>
<tr>
<td>Research Capacity</td>
<td>Building [166]</td>
<td>x</td>
</tr>
<tr>
<td>Capacity</td>
<td>Building [25]</td>
<td>x</td>
</tr>
<tr>
<td>Capacity</td>
<td>Building [133]</td>
<td>x</td>
</tr>
<tr>
<td>Capacity</td>
<td>Building [150]</td>
<td>x</td>
</tr>
<tr>
<td>Progress</td>
<td>Building [142], Development [143]</td>
<td>x</td>
</tr>
<tr>
<td>Health Research Capacity</td>
<td>Building [30], Strengthening [70]</td>
<td>x</td>
</tr>
<tr>
<td>Health Research Capacity</td>
<td>Building [166], Strengthening [74, 126]</td>
<td>x</td>
</tr>
<tr>
<td>Research Capacity</td>
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<tr>
<td>Capacity</td>
<td>Strengthening [66]</td>
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<tr>
<td>Capacity</td>
<td>Strengthening [65]</td>
<td>x</td>
</tr>
<tr>
<td>Capacity</td>
<td>Strengthening [47]</td>
<td>x</td>
</tr>
<tr>
<td>Research Capacity</td>
<td>Development [4], Strengthening [31, 74]</td>
<td>x</td>
</tr>
<tr>
<td>Health Research Capacity</td>
<td>Development [45]</td>
<td>x</td>
</tr>
<tr>
<td>Organisational Capacity</td>
<td>Development [27]</td>
<td>x</td>
</tr>
<tr>
<td>Progress</td>
<td>Building [142], Development [143]</td>
<td>x</td>
</tr>
</tbody>
</table>

[^1]: Numbered citations pertain to the reference list in Supplementary Table 1. 2. The content of each definition was independently coded according to the following criteria: explicit reference to individual (ind.), institutional (Ins.) or environmental (Env.) level capacity strengthening; explicit reference to strengthening capacity in terms of defining research questions or identifying research priorities (Def.), conducting research or applying research methods (Car.) or communicating and applying research outcomes.
(App.); explicit reference to facilitating an improvement in research abilities/quality (Qua.) sustainability (Sus.), reference to HRCS as a process (Pro.) and/or HRCS as a continuous activity (Con.).