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The National Construction Research Agenda for 2014-2017 was developed as one of the milestones of the NCA in capacity building in the construction industry.

Arch. Daniel Manduku
Executive Director / Registrar of Contractors

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Executive Director / Registrar of Contractors
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<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>UoN</td>
<td>University of Nairobi</td>
</tr>
<tr>
<td>KEFRI</td>
<td>Kenya Forest Research Institute</td>
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<td>MOEST</td>
<td>Ministry of Education Science and Technology</td>
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<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
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<tr>
<td>KBRC</td>
<td>Kenya Building Research Centre</td>
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<tr>
<td>JKUAT</td>
<td>Jomo Kenyatta University of Agriculture and Technology</td>
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<tr>
<td>AAK</td>
<td>Association of Architects of Kenya</td>
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<td>SOS TTI</td>
<td>SOS Technical Training Institute</td>
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<td>KFMB</td>
<td>Kenya Federation of Master Builders</td>
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<td>KENINVEST</td>
<td>Kenya Investment Authority</td>
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<td>MoLHUD</td>
<td>Ministry of Lands, Housing and Urban Development</td>
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<td>NaCRA</td>
<td>National Construction Research Agenda</td>
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CHAPTER ONE

1 Background
National Construction Research Agenda (NaCRA) was a stakeholder driven process initiated by National Construction Authority to identify and prioritize gaps and challenges that require research to be undertaken. The setting of research priorities was guided by principles of stakeholder participation; inclusivity and need for answers to the identified priority areas.

1.1 General process
The process that resulted in the publication of this Research Agenda included the undertaking of the following key activities:
1. Formation of a planning committee, identification, compilation and establishment of stakeholder database.
2. National construction research agenda stakeholder forum was convened at Kenya School of Monetary studies – Nairobi, in June 2014. Research needs were identified in this forum.
3. A committee of experts was formed to identify and prioritize the gaps, challenges and research needs.

1.2 Format of the Research Agenda
This 2014-2017 Research Agenda is organized around the five key factors (5Ms) in construction including, management, manpower, materials, methods and money.
The country’s physical built environment can serve as an ideal laboratory for those working in the many disciplines and fields that overlap with the Built Environment disciplines, and productive academic research, informed by practitioner needs and skills sets.

1.3 How to Use this Research Agenda
Systemic action research contemplates a non-linear process, with multiple perspectives and research methodologies over time. For this reason, the questions in this 2014-2017 Research Agenda function as umbrella research concepts, sufficiently flexible to permit multiple projects and multiple methodologies, under which the academic and practitioner can craft more defined project scopes and deliverables that reflect the project team’s needs and skills sets.

1.4 Scope
This Research Agenda addresses research priorities of the construction industry. By far the majority of topics concern the construction issues that are dogging the industry growth.
This document focuses on identifying short- and long-term research needs that will enable more sustainable construction materials and processes to be undertaken and communicated more effectively to the public.

INTERESTED IN A RESEARCH AREA?
If you are interested in working on one or more topic, Please e-mail (research@nca.go.ke) or call (0700 021222) www.nca.go.ke.
CHAPTER TWO

2 RESEARCH AREAS
This section presents the key research priorities which were identified as key research areas for Kenya.

Within each of these technical disciplines, priorities topics are articulated in-order to express the rationale. The table below shows summarized priority areas.

Provided objectives are designed to address each specific research area, these priorities have been reasonably presented in a broader sense with a view of allowing a researcher to have discretionary opportunity and flexibility to design specific research studies that address a particular identified topical area of priority research.

<table>
<thead>
<tr>
<th>Item</th>
<th>Topic</th>
<th>Background</th>
<th>Action</th>
<th>Budget</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Impact of current building code on emerging materials and technologies</td>
<td>The current Building code was last revised in 1976. New innovative technologies and materials have since been introduced into the industry. Some old technologies have also become obsolete.</td>
<td>Review the building code to address the obsolescence and emergence of technologies and materials</td>
<td>Source of funds expected from Development partners</td>
<td>There was an attempt to revise the building code – Investigation required to find progress status</td>
</tr>
<tr>
<td>2</td>
<td>Developing a policy on the utilization of emerging construction technologies and materials in Kenya</td>
<td>There is proliferation of new technologies and materials into the industry with little regard to locally available materials &amp; technologies. There is no clear policy on regulation of the use of these materials and technologies in the local industry. The industry also lacks ready data on particular locations and adequacy of these indigenous materials.</td>
<td>Mapping of indigenous materials in each county. Develop guidelines on standardization and utilization of locally available construction materials vis-à-vis imported ones. Develop long-term strategies on promotions of the use of indigenous construction materials &amp; technologies</td>
<td>Source of funds expected from Development partners</td>
<td>Enhanced use of local materials &amp; technologies will create employment and improve quality of life hence fulfill vision 2030</td>
</tr>
<tr>
<td>3</td>
<td>Capacity building on emerging trends in construction</td>
<td>As construction industry is continuously evolving, the influx of expatriates is costly and unsustainable on mega projects and the local economy. These emerging trends must be backed up with relevant skill, financial systems and practitioner’s capacity development programs. Inadequate local has led to the low uptake of these technologies.</td>
<td>Investigate how training institutions are coping with the emerging trends in construction industry. Identify/ suggest tools for which technology transfer programs could be successfully implemented.</td>
<td>Source of funds expected from Development partners</td>
<td>Improved local capacity will increase uptake of new technologies, thereby improving speed, quality and reducing costs.</td>
</tr>
</tbody>
</table>
Evaluate local contractors’ capacity to undertake public projects in Kenya?
Investigate the impact and uptake of ICT in construction processes
Investigate the effectiveness of conflict/dispute resolution mechanisms used in the construction industry in Kenya.
Investigate how the regulatory framework in Kenya impacts on sustainability in the construction industry.
Study the impact of multiple construction industry laws, regulations and policies on service delivery

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</thead>
<tbody>
<tr>
<td>4</td>
<td>Evaluate local contractors’ capacity to undertake public projects in Kenya?</td>
<td>The failure or success of any project is influenced by prequalification of a contractor among other factors. There have been cases of projects stalling with project owners citing lack of contractor’s capacity. Many concerns have been raised including documents forgery and unethical practice among others.</td>
<td>Identify current methodologies of analyzing the technical &amp; financial capacity of entities in the construction.</td>
<td>Source of funds expected from National Construction Authority</td>
<td>Source of funds expected from Development partners</td>
</tr>
<tr>
<td>5</td>
<td>Investigate the impact and uptake of ICT in construction processes</td>
<td>Major construction projects demand heavy exchange of data and information between project stakeholders. ICT has been shown to be a vital tool in assisting the construction industry cope with the increasing complexity of its products/services as well as the demand to increase productivity. Key emerging economy studies are needed to assess the impact of the ICT in the construction sector.</td>
<td>Identify opportunities for which project owners can leverage on to assist with reforming the small business attitude in the industry.</td>
<td>Source of funds expected from Development partners</td>
<td>Source of funds expected from National Construction Authority</td>
</tr>
<tr>
<td>6</td>
<td>Investigate the effectiveness of conflict/dispute resolution mechanisms used in the construction industry in Kenya.</td>
<td>The conflict/dispute management framework in Kenya has been criticized as being indefinite, time consuming and does not encourage efficiency. There is need to expand the scope of civil procedure act and entrench adjudication as a means of dispute resolution. In construction projects where time is key conflict resolution must be expedited.</td>
<td>Justification of use of ICT in construction processes will result in improved processes and efficiency.</td>
<td>Findings will enhance amicable solutions and speed up conclusion of disputes.</td>
<td>Justification of use of ICT in construction will result in improved processes and efficiency.</td>
</tr>
<tr>
<td>7</td>
<td>Investigate how the regulatory framework in Kenya impacts on sustainability in the construction industry.</td>
<td>Physical activities in the construction are continually causing changes in landscape and hence affecting the environment and depleting resources for future generations. It is important to put into perspective the regulatory framework as regards the philosophy of resource use and management.</td>
<td>Identify or suggest best model for evaluating sustainable projects in the construction industry.</td>
<td>Sustainable construction will guarantee clean environment, prudent use of resources and address social needs of stakeholders</td>
<td>Sustainable construction will guarantee clean environment, prudent use of resources and address social needs of stakeholders</td>
</tr>
<tr>
<td>8</td>
<td>Study the impact of multiple construction industry laws, regulations and policies on service delivery</td>
<td>The failure or success of any project is influenced by prequalification of a contractor among other factors. There have been cases of projects stalling with project owners citing lack of contractor’s capacity. Many concerns have been raised including documents forgery and unethical practice among others.</td>
<td>Harmonized laws will improve coordination in the construction industry and improve service delivery.</td>
<td>Harmonized construction laws will improve coordination in the construction industry and improve on service delivery.</td>
<td>Harmonized construction laws will improve coordination in the construction industry and improve on service delivery.</td>
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How can construction project management be adopted into the regulations?

Investigate factors influencing corruption in the construction industry.

Study the management of occupational hazards in the construction industry in Kenya.

Investigation of effective management practices of construction projects in the public and private sector.

How to enforce preventive infrastructure and building maintenance.

Source of funds expected from National Construction Authority.

Source of funds expected from Development partners.

Source of funds expected from Development partners.

Source of funds expected from Development partners.

Improved efficiency and satisfaction to the project owner.

Absence of corruption will lead to improved level of safety in the construction industry.

The complex nature of the construction industry poses a great challenge to effective management of occupational health and safety.

Investigation of effective management practices of construction projects in public and private sector.

Investigation of the extent to which infrastructure assessment techniques and technologies have been implemented in the local construction industry.

Investigation of the strategies currently being employed to build capacity in this area.

How can construction project management be adopted into the regulations?
<table>
<thead>
<tr>
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</tr>
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</table>
| 14   | Investigate the capacity of technical training institutions and their relevance in the growth and development of the construction industry | In Kenya the rapid restructuring of education institutions is affecting the existence of vocational training centers and reducing the options available for primary and secondary graduates. The technical vocational institutions played a key role in providing base for career growth. | □ Conduct baseline skill survey in the industry  
□ Identify and suggest best practice in skill enhancement programs.  
□ Investigate the capacity of technical vocational training institutions | Source of funds expected from Development partners | Findings will be used to enhance capacity building in the industry |
| 15   | Investigate of financial risk management in construction projects    | The complexity of modern life and the interrelation of risks in construction environment have brought a new dimension on risk management.                                                                      | □ Investigate the current status of construction risk management and document any management tools available.  
□ Identify and suggest innovative risk management strategies that can be leveraged on the existing legal framework | Source of funds expected from Development partners                  |                                                                                           |
| 16   | Investigate effectiveness waste management practices in construction sites in Kenya | Construction waste management and minimization has great opportunity to contribute to environmental sustainability and improved construction performance. | □ Investigate effectiveness of existing legal framework as an appropriate guide for construction waste management  
□ Identify and suggest long-term strategies on construction management | Source of funds expected from Development partners |                                                                                           |
| 17   | The impact of politics on construction projects in Kenya              | Politics and the construction industry in Kenya are intricately woven. There is perceived political influence on decision making in many a construction projects. The new governance structure of devolution has added in equal measure the opportunities and complexities. There is a need to devise strategies for improving construction project management taking into account political influence. | □ Investigate political forces and/or project characteristics that determine execution of project to completion  
□ Identify and suggest strategies to best manage political influence in construction projects. | Source of funds expected from Development partners |                                                                                           |
CHAPTER THREE

3 FINANCING OF THE NATIONAL CONSTRUCTION RESEARCH AGENDA

Financing of research in the identified priority areas is critical for the realization of the goal and objectives of this Agenda. Stakeholders are, therefore, implored to support the financing of research geared towards addressing priorities outlined in this Agenda. The following mechanisms of financing this Agenda shall be considered:

3.1 Funding from the Authority and development partners

The authority shall commit resources to support the undertaking of research in the identified priorities. Borrowing from best practice experiences from other countries, the Authority shall establish a National Construction Research Fund (NCRF). The NCRF shall comprise a pool of resources from development partners and other sponsors. This will be a basket funding for research activities in the identified priorities. The Fund shall be managed by the National Construction Authority with clear guidelines. A key advantage of the NCRF is to ensure sustainability of funding for research in the construction industry.

3.2 Research Grant Scheme

Researchers and all other stakeholders wishing to undertake research in the identified priority areas shall be encouraged to take advantage of the existing national and international research grant schemes in construction research.

3.3 Public and Private Partnerships

Public and private partnerships shall be an important vehicle for nurturing resource mobilization for research in the priority areas. Researchers shall be encouraged to collaborate in undertaking research...
CHAPTER FOUR

4 MONITORING AND EVALUATION OF THE AGENDA

Monitoring and evaluation techniques shall be used to track and review the implementation of the research Agenda.

4.1 Tools for Tracking Adherence to the Agenda

4.1.1 Checklist for Submission of Review of Research Protocols
A NaCRA Checklist for submission of protocols for review shall contain an element of whether the study is addressing any of the priority areas.

4.1.2 Monitoring and Evaluation (M&E) Reports
The Authority shall work with relevant stakeholders to undertake periodical M&E visits to areas where the approved studies are being conducted.

4.1.3 Progress and Final Reports
Progress and final reports shall be submitted to the research committee.

4.1.4 Database and Directory of Research Studies
Final reports of studies shall be compiled in a database and directories of approved research studies.

4.2 Review of the Agenda
This Agenda has a lifespan of three years. Informed by emerging issues in construction industry, there shall be a midterm evaluation followed by a final review of the Agenda after three years.