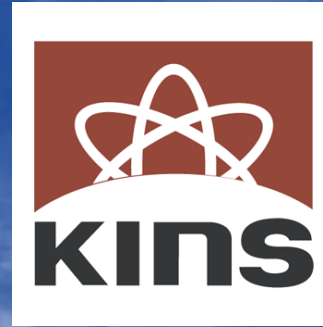


NATIONAL INFRASTRUCTURE AND PUBLIC PERCEPTION SURVEY TO INTRODUCE A RESEARCH REACTOR IN TANZANIA (URT).



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Presentation Objectives

- ❖ Development of Questionnaire.
- ❖ Understanding the Survey.
- ❖ Evaluation of the Questionnaire.
- ❖ Ascertain the public perception on RR.

Limitation of Survey

- ❖ Public views were collected from government officials with knowledge of nuclear science and technology

LOCATION OF UNITED REPUBLIC OF TANZANIA IN THE WORLD

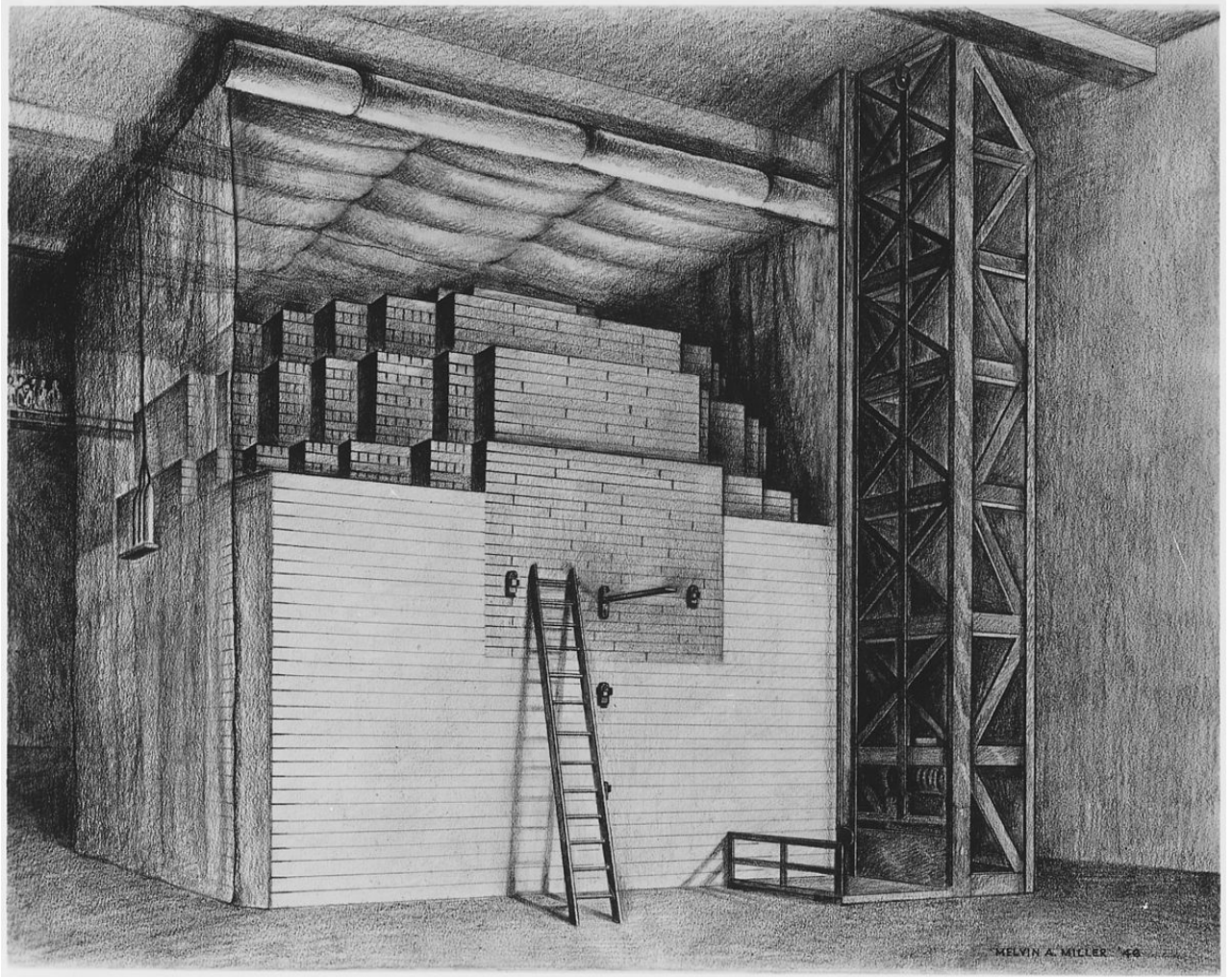


TANZANIA

- ❖ East Africa
- ❖ Area **947,303km²**
- ❖ Bordered with **8 countries**
- ❖ Mt. Kilimanjaro **5895m**
- ❖ Capital City **Dodoma**
- ❖ Population **55.5 (2016)**

Introduction

- ❖ History of RR dates back to 1942 by scientists under Enrico Fermi at Chicago Pile-1 (CP-1) in Chicago US.
- ❖ Self-sustaining nuclear chain reaction achieved and controlled.
- ❖ Initiating the controlled release of nuclear energy

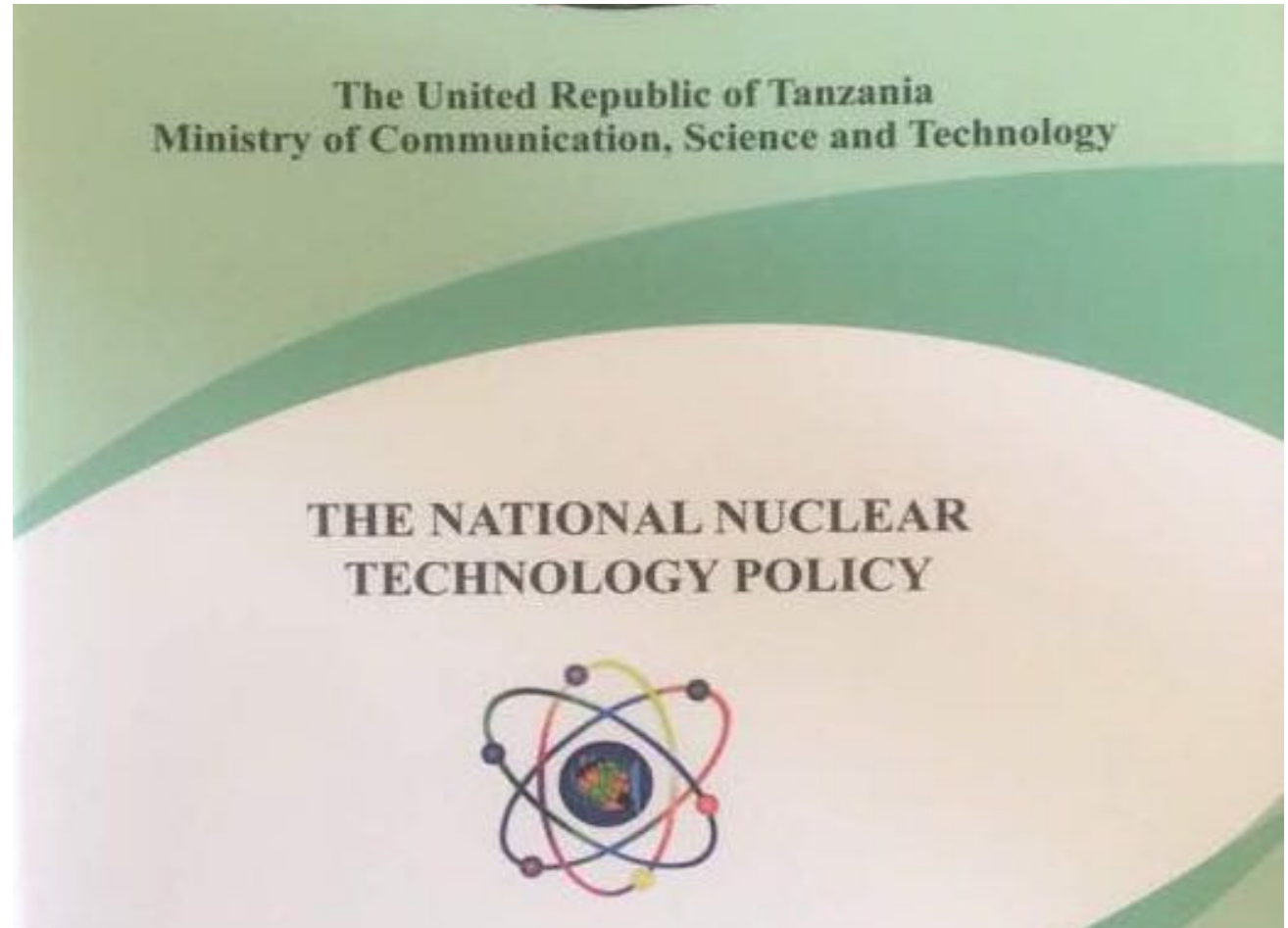


Introduction cont..

- ❖ Either Civil or Commercial provide a neutron source for research and other purposes.
- ❖ Power rating relatively small with specific output range (0-200MWe)
- ❖ Tanzania lack previous research on RR infrastructure and public perceptions.
- ❖ Public's viewpoint important to influence for safety and security.
- ❖ The National Nuclear Policy of Tanzania 2013 of the URT

The National Nuclear Technology Policy

- ❖ Enacted in 2013.
- ❖ State the requirements and vision about the Country RR.
- ❖ One of the key catalyst and driver of the National Development.
- ❖ Improve public perception and awareness.



Methodology

- ❖ Infrastructures survey for RR in the URT by available information from TAEC and MEST. However, for the purpose of this paper we analyzed public views.
- ❖ Public opinions on RR collected using **developed and distributed** questionnaire followed by subsequent statistical analysis performed to capture and analyze public opinions on Likert Scale on five issues.

Development of Questionnaire

Section A

- The URT's National Nuclear Technology Vision & Policy.

Section B

- The expectations and roles of RR to the URT.

Section C

- Nuclear Safety after introduction of the RR in the URT,

Section D

- The Human Resource Management

Section E

- National infrastructure for RR improvement in the URT.

Coding on Likert Scale

5

- Strongly Agree

4

- Agree

3

- Neutral

2

- Disagree

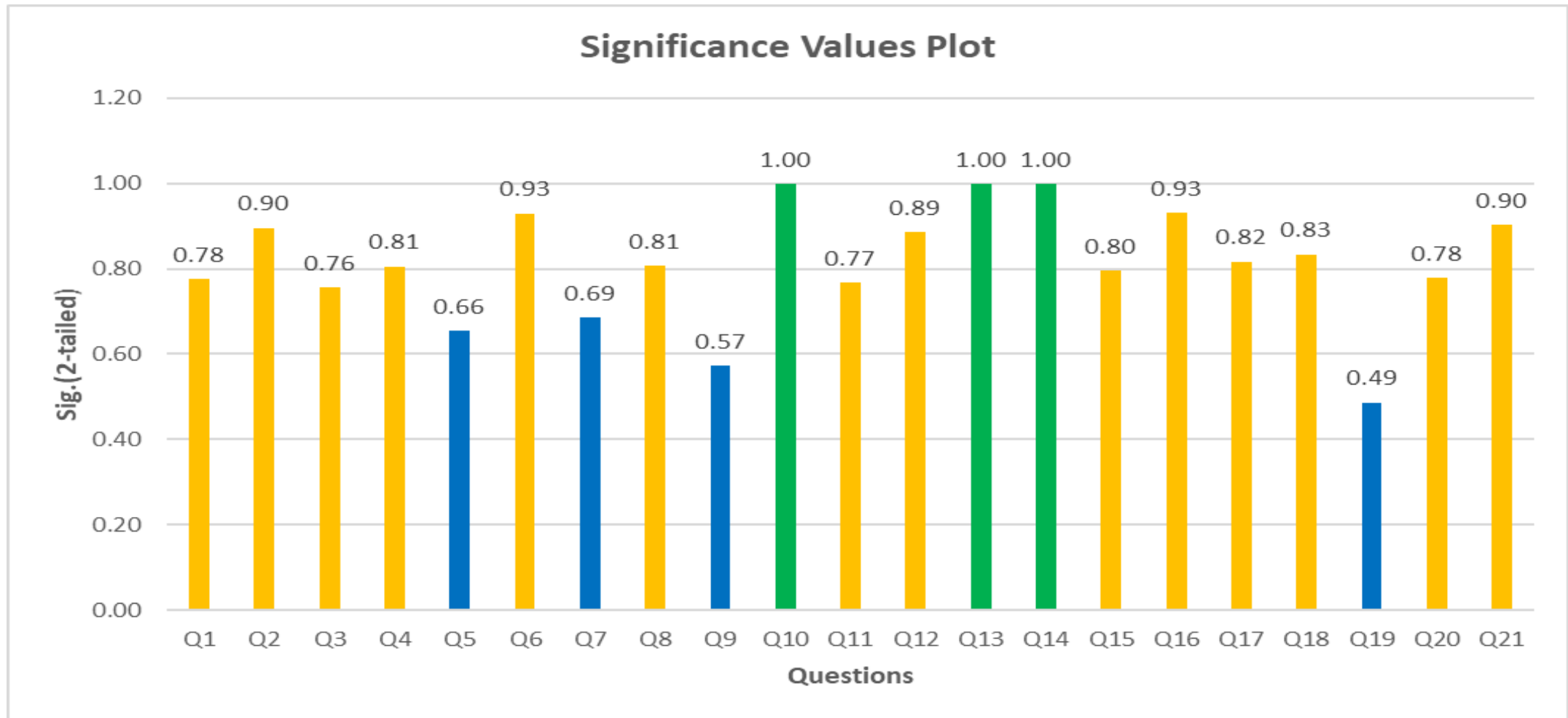
1

- Strongly Disagree

Results

Designation	Distributed Q'nnaire	Collected Q'nnaire	Total Response
Principle S. Officers	10	5	105
Senior S. Officers	14	10	210
Scientific Officers	8	3	63
Senior Engineers	7	4	84
Assistant Engineers	11	8	168
Scientific Assistant	10	10	210
Total	60	40	840

Results from SPSS 20.0.0.0



Results from SPSS 20.0.0.0

Significant relative to other questions

- ❖ Q10 on RR will improve safety infrastructure for advanced nuclear facilities and activities in the URT.
- ❖ Q13 on the URT has enough human resource to develop nuclear RR program.
- ❖ Q14 on RR program will be useful training center for scientists and researchers.

Results from SPSS 20.0.0.0

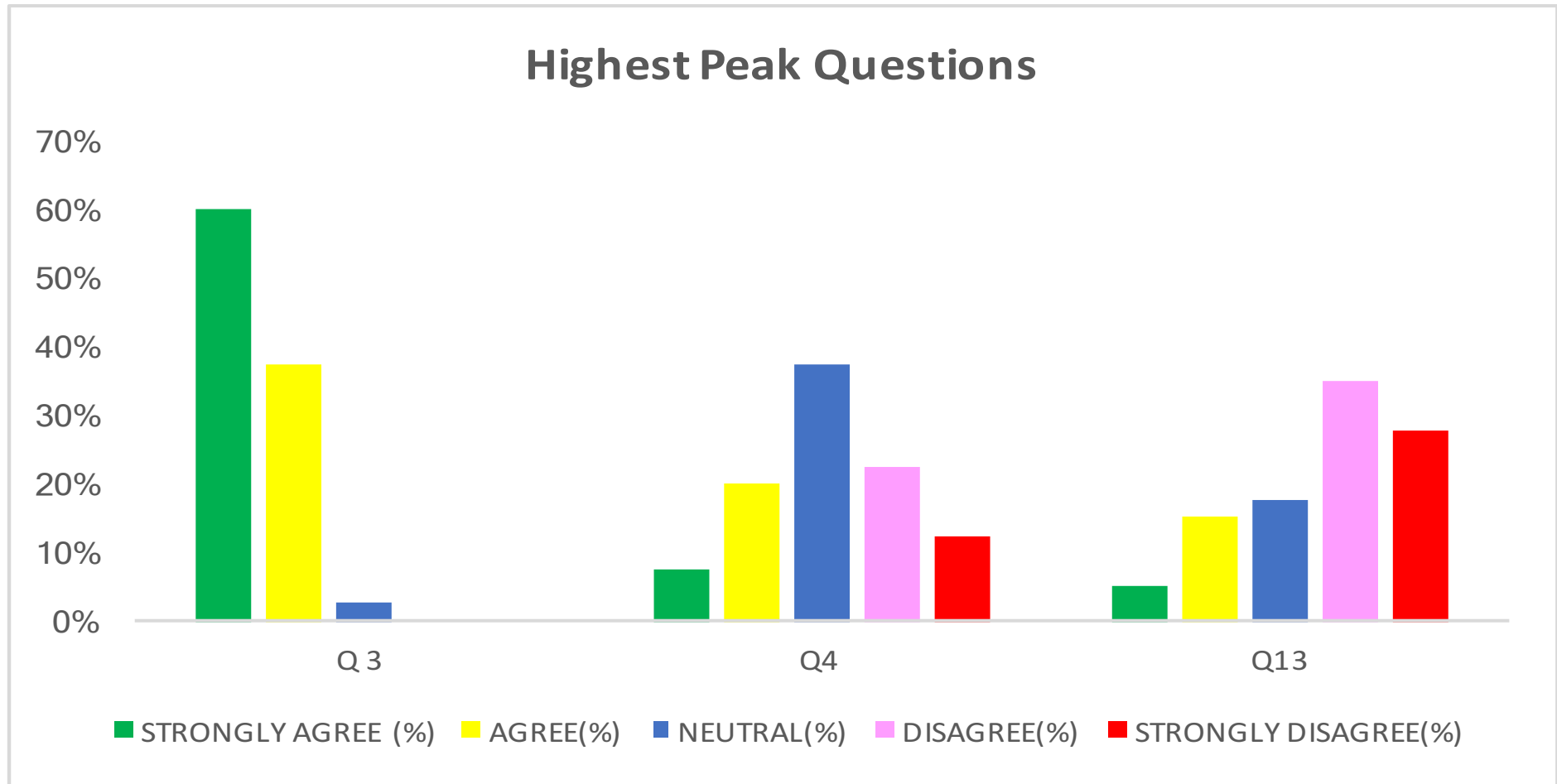
Non-significant as participants gave neutral responses.

- ❖ Q5 on the URT government recognize the challenges of introducing and sustaining nuclear RR.
- ❖ Q7 on the URT can highly benefit from the Utilization of RR.
- ❖ Q9 on RR will serve as a valuable resource for scientists from across a broad spectrum.
- ❖ Q19 on RR will strengthen the national position.

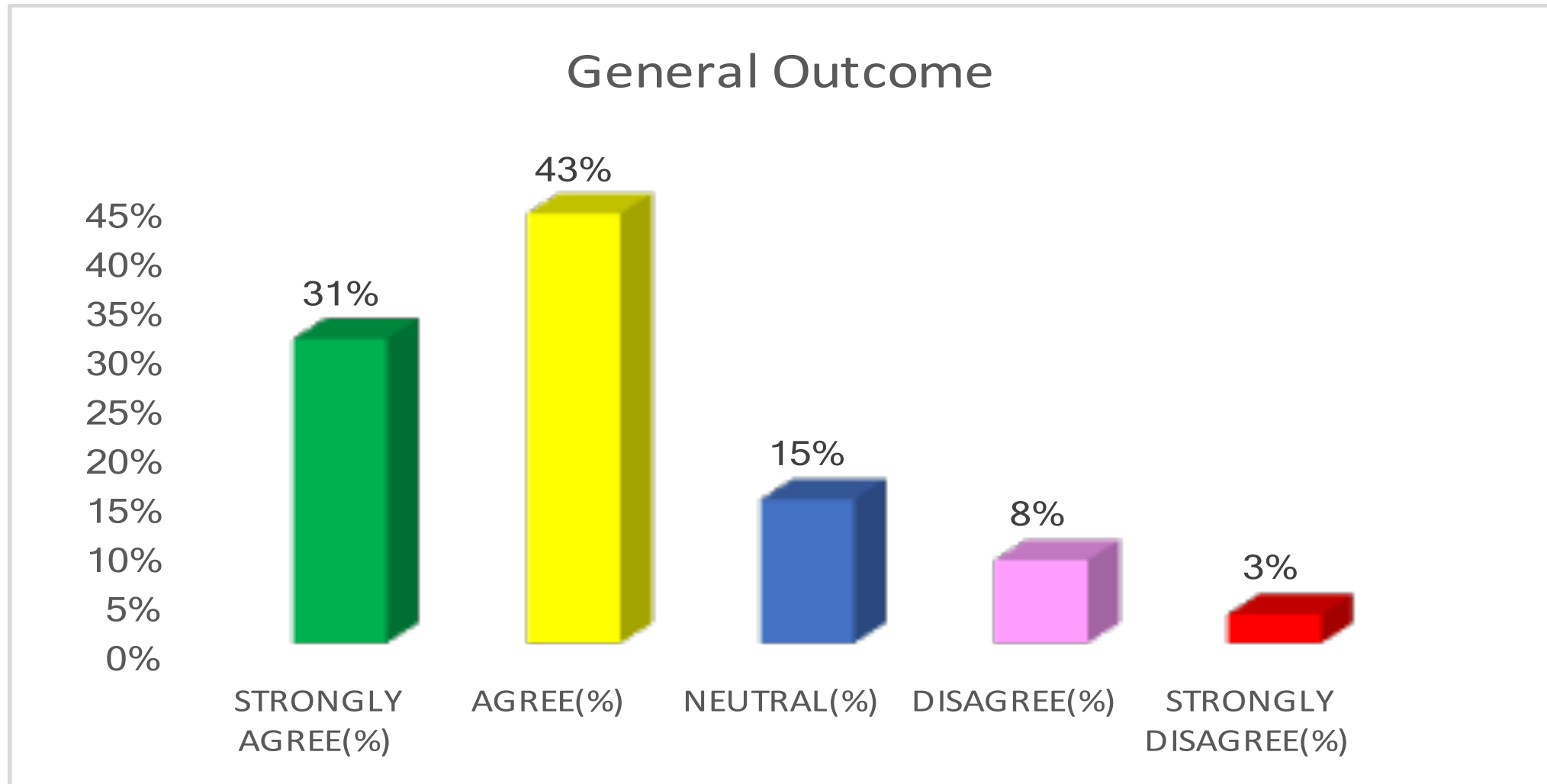
Results Highest Peak Questions

- ❖ Q3 on RR will be a useful research tool in the URT received **60% Strongly Agree responses.**
- ❖ Q13 on URT has enough human resources to develop a nuclear RR program received **28% Strongly Disagree responses.**
- ❖ Q4 on the public is concerned about RR development as a major issue in the URT received **38% neutral responses.**

Results



General Results



Interpretation of Results

- ❖ The positive responses (Agree and Strongly Agree) shows positive perception and acceptance towards RR in the URT.
- ❖ The negative responses (Disagree and Strongly Disagree) indicates that some areas requires some overhaul before introduction of a research reactor.
- ❖ Neutral responses indicated that the knowledge of the respondents related to RR development was either limited or might not have understood the questions.

Conclusion

- ❖ Despite the difference in opinions among the consulted government officials, it was generally revealed that the public is positive at large
- ❖ Policy and decision making should seek to understand and account for the various factors behind the public's perception of RR.
- ❖ This study shows that integrating views of the public in RR development is one contributing mechanism to aid design and introduce a socially more acceptable RR in the URT.

**THANK YOU
BE BLESSED**

KILIMANJARO

TO THE ROOF OF AFRICA



Questionnaire

No	Questions
	<p>Section A:</p> <p>This section of the survey asks your opinions about the United Republic of Tanzania's National Nuclear Technology Vision & Policy.</p>
1	<p>The United Republic of Tanzania government should consider to develop nuclear research reactor program.</p> <p><input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
2	<p>The current technological situation places research reactor as a necessity in the United Republic of Tanzania.</p> <p><input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
3	<p>A research reactor will be a useful research tool in the United Republic of Tanzania.</p> <p><input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
4	<p>The public is largely concerned about research reactor development as a major issue in the United Republic of Tanzania.</p> <p><input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input checked="" type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
5	<p>The United Republic of Tanzania government cognize the challenges of introducing and sustaining nuclear research reactor.</p> <p><input type="checkbox"/> Strongly Agree <input checked="" type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
	<p>Section B:</p> <p>The section of the survey asks your opinions about the expectations and roles of domestic research reactor to the United Republic of Tanzania.</p>
6	<p>A research reactor is a premier research tool for achieving Millennium Development Goals' and the National Vision 2025.</p> <p><input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
7	<p>The United Republic of Tanzania can highly benefit from the Utilization of domestic research reactor.</p> <p><input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
8	<p>Multi-purpose of domestic research reactor would improve United Republic of Tanzania people's quality of life.</p>

	<p><input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
9	<p>A Research reactor will serve as a valuable resource for scientists from across a broad spectrum.</p> <p><input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
	<p>Section C:</p> <p>This section of the survey asks your opinions about whether the nuclear safety will be improved in the United Republic of Tanzania after introduction of the domestic research reactor.</p>
10	<p>A Research reactor will improve safety infrastructure for advanced nuclear facilities and activities in the United Republic of Tanzania.</p> <p><input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
11	<p>A Research reactor program can help to shape the nuclear safety culture in United Republic of Tanzania.</p> <p><input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
12	<p>Direct introduction of a research reactor program without social awareness impairs trust to safety.</p> <p><input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input checked="" type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
	<p>Section D:</p> <p>This section of the survey asks your opinions about the human resource management with regards to the research reactor to be introduced in the United Republic of Tanzania.</p>
13	<p>The United Republic of Tanzania has enough human resource to develop nuclear RR program.</p> <p><input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
14	<p>A research reactor program will be useful training center for scientists and researchers.</p> <p><input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
15	<p>A research reactor can secure the human resource development in the United Republic of Tanzania.</p> <p><input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree</p>
	<p>Section E:</p>

Questionnaire cont....

	This section of the survey asks your opinion about the research reactor national infrastructure currently available in the United Republic of Tanzania and their expected improvement in future.
16	The United Republic of Tanzania have enough infrastructure to accommodate the expected research reactor program. <input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input checked="" type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
17	A research reactor would improve the nuclear legal framework. <input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
18	A research reactor would improve the regulatory framework. <input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
19	A research reactor will strengthen the national position. <input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
20	Introduction of research reactor program will enhance Regulatory Body independence. <input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
21	The presence of a domestic research reactor will improve the economics sector for United Republic of Tanzania. <input checked="" type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neutral <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree

THANK YOU FOR YOUR TIME AND EFFORT