



**SCHOOL OF ENVIRONMENTAL TECHNOLOGY,
FEDERAL UNIVERSITY OF TECHNOLOGY**
MINNA, NIGER STATE, NIGERIA

EDITORS IN CHIEF

R. E. Olagunju

B. J. Olawuyi

E. B. Ogunbode

**SETIC
2020**
**INTERNATIONAL
CONFERENCE**

BOOK OF PROCEEDINGS

MAIN THEME:

Sustainable Housing And Land Management



3RD -5TH MAY, 2021



SCHOOL OF ENVIRONMENTAL TECHNOLOGY COMPLEX,
FUT, MINNA, NIGER STATE, NIGERIA

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Vice-Chancellor:
Federal University of Technology Minna, Nigeria

Host:

Prof: R.E. Olagunju mnia
Dean, School of Environmental Technology
Federal University of Technology Minna, Nigeria

**School of Environmental
Technology International
Conference
(SETIC 2020)**

3RD – 5TH MAY, 2021

**Federal University of Technology Minna, Niger
State, Nigeria**

CONFERENCE PROCEEDINGS

EDITORS IN CHIEF

R. E. Olagunju

B. J. Olawuyi

E. B. Ogunbode

ISBN 978-978-54580-8-4

SETIC 2020 International Conference:

“Sustainable Housing and Land Management”

School of Environmental Technology, Federal University of Technology, Minna
3rd – 5th, May 2021.

Proceedings of the 3rd School of Environmental Technology International Conference (SETIC 2020)

Published by
School of Environmental Technology,
Federal University of Technology Minna.
PMB 65, Minna,
Niger State Nigeria.

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ISBN 978-978-54580-8-4

Editors-in-chief:	Prof. Olagunju Remi Ebenezer	Federal University of Technology Minna. Niger State, Nigeria
	Dr. Olawuyi Babatunde James	Federal University of Technology Minna. Niger State, Nigeria
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SETIC 2020 International Conference:

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PREFACE

The School of Environmental Technology International Conference (SETIC 2020) is organised by School of Environmental Technology, Federal University of Technology Minna, Nigeria. In collaboration with Massey University New Zealand, Department of Civil Engineering Faculty of Civil Engineering and Built Environment Universiti Tun Hussein Onn Malaysia, Malaysia Centre For Professional Development and Industrial Project Development School of Professional and Continuing Education (SPACE) UTM-KL Malaysia, Global Academia, Department of Architecture, Faculty of Engineering and Architecture, Istanbul Gelisim University Istanbul Turkey, Sustainable Environmental and Technology (SET) Research Group, Department of Architecture, Universiti Sains Islam.

The main theme for this year conference is “SUSTAINABLE HOUSING AND LAND MANAGEMENT”. This promotes and encourage innovative and novelty for policy issues for inclusive and sustainable housing; access to finance for housing and land development; sustainable building materials; building cost management; sustainable and resilient cities; geoinformatics for land management; rapid urbanization; sustainable land use and spatial planning and gender issues in access to land.

The responses from participants for this conference are overwhelming, well attended, and successful. The operation mode was virtual for all participants who choose the oral presentation mode and physical for all poster medium presenters. Our participants are from various Universities and other sector across the globe, from countries like United State of America (USA), Turkey, Malaysia, China, Saudi Arabia, Kenya, New Zealand and South Africa just to mention a few. Hence, this conference provides a good platform for professionals, academicians and researchers to widen their knowledge and approach on latest advances in research and innovation. Papers presented in this conference cover a wide spectrum of science, engineering and social sciences.

Finally, a note of thanks must go to SETIC 2020 Local Organizing Committee (LOC) for their remarkable dedication in making this conference a success. We hope the event will prove to be an inspiring experience to all committee members and participants.

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ACKNOWLEDGEMENTS

The effort put together in achieving the success of SETIC 2020 is predicated on the feat of the first and second edition of School of Environmental Technology International Conference held in 2016 and 2018, respectively. The support and goodwill from Vice-Chancellor of Federal University of Technology, Dean School of Environmental Technology, Dr Dodo Y. A., Dr Moveh S. and many other highly motivated people are highly appreciated.

It is also my privilege and honour to welcome you all, on behalf of the Local Organizing Committee (LOC) to the 3rd edition of the Biennial School of Environmental International Conference (SETIC 2020). This Conference which was earlier schedule for 7th to 11 April, 2020 is holding now (3rd to 5th May, 2021) due to the challenges of COVID-19 Pandemic and the ASUU-FGN crisis which made our public Universities in Nigeria to be closed for about one year. We thank God for keeping us alive to witness the great SETIC2020 event, in an improved form exploiting the new-normal situation posed by the Pandemic for a hybrid (i.e. both physical and virtual) form of Conference participation.

The conference provides an international forum for researchers and professionals in the built environment and allied professions to address fundamental problems, challenges and prospects Sustainable Housing and Land Management. The conference is a platform where recognized best practices, theories and concepts are shared and discussed amongst academics, practitioners and researchers. This 2020 edition of SETIC has listed in the program a Round Table Talk on Housing Affordability beyond COVID-19 with selected Speakers from across the globe available to do justice on the topic of discussion.

Distinguished Conference participants, permit me to warmly welcome our Keynote and Guest Speakers:

- Prof. Ts. Dr. Mohd Hamdan Bin Ahmad, *Deputy Vice Chancellor (Development) Universiti Technology Malaysia (UTM)*;
- Assoc. Prof. Dr. James O.B. Rotimi, *Academic Dean Construction, School of Built Environment, College of Sciences, Massey University of New Zealand*;
- Assoc. Prof. Sr. Dr. Sarajul Fikri Mohammed, *General Manager, Centre for Professional Development and Industrial Project Development School of Professional and Continuing Education (SPACE), UTM-KL*.
- Prof. Ts. Dr. Zanail Abidin Akasah, *Visiting Professor on Sustainable Solar Integrated Design Building Design, International Micro Emission University (IMEU)/HIMIN Ltd. China & Senior Research Fellow, The Architects Resourcery, Jos, Nigeria*;
- Ar. Dr. Elina Mohd Husini, *Department of Architecture, Faculty of Engineering & Built Environment, Universiti Sains Islam*;
- Asst. Prof. Dr. Yakubu Aminu Dodo, *Department of Architecture, Faculty of Engineering and Architecture Istanbul Gelisim University, Istanbul Turkey*

and the five Speakers for our Round Table Talk on “Housing Affordability beyond COVID-19”

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- Dr. Muhammad Mustapha Gambo, *Manager, Policy, Research and Partnerships, Shelter Afrique, Nairobi, Kenya;*
- Prof. Dr. Soumia Mounir, *Department of Architecture Ecole Nationale d'Architecture d'Agadir [The National School of Architecture of Agadir], Morocco*
- Dr. Said Alkali Kori, *General Manager, Projects and Portfolio management, Family Homes Fund, Federal Ministry of Finance, Abuja;*
- Ts. Dr. Sasitharan Nagapan, *Department of Civil Engineering, Faculty of Engineering and Built Environment, Universiti Tun Hussein Onn Malaysia, Malaysia;*
- Dr. Mercy Nguavese Shenge, *AIA Assoc. Historic District Commissioner, City of Rockville, MD, USA.*

for accepting to share from their knowledge, wealth of experience and be available to interact with participants on varied issues on “**Sustaining Housing and Land Management**”.

As reflected on the Conference program, the Conference activities will be Virtual for power point presenters to run in four parallel sessions on the Zoon platform while the participants for Poster presentations (mostly Postgraduate students) are expected to have their Posters displayed in the Environmental Complex Building of the Federal University of Technology, Minna. With a total of One Hundred and One (101) articles captured in the Conference Proceedings covering the seven subthemes of the Conference, I have no doubt that we are all in for an impactful experience at SETIC2020 as we brainstorm, exchange ideas, share knowledge and participate in evolving more approach to sustainable housing and land management drives.

I implore us all to enjoy every moment of the deliberations and ensure we maximize the great opportunity offered by the Conference to network for better research and career development as we also make new friends.

I also on behalf of myself and the LOC express our appreciation to the Dean, School of Environmental Technology and the entire Staff of the School for giving us the opportunity to steer the ship for SETIC2020. To the Reviewers and various Committees that served with us, I say thank you for helping us through despite the pressure of work.

Thanks, and God bless you all.

Olawuyi, B.J. (PhD)
Chairman, LOC
SETIC2020

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3rd – 5th, May 2021.

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DECLARATION

PEER REVIEW AND SCIENTIFIC PUBLISHING POLICY STATEMENT

3rd May 2021

TO WHOM IT MAY CONCERN

I wish to state that all the papers published in SETIC2020 Conference Proceedings have passed through the peer review process which involved an initial review of abstracts, blind review of full papers by minimum of two referees, forwarding of reviewers' comments to authors, submission of revised papers by authors and subsequent evaluation of submitted papers by the Scientific Committee to determine content quality.

It is the policy of the School of Environmental Technology International Conference (SETIC) that for papers to be accepted for inclusion in the conference proceedings it must have undergone the blind review process and passed the academic integrity test. All papers are only published based on the recommendation of the Reviewers and the Scientific Committee of SETIC

Babatunde James OLAWUYI
Chairman SETIC2020
Federal University of Technology, Minna, Nigeria

Papers in the SETIC2020 Conference Proceedings are published on www.futminna.edu.ng,
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Prof. Olagunju Remi Ebenezer
Dean
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Prof. Nuhu M. B.	Access to Finance for Housing and Land Development
Prof. Ajayi M.T.A	Policy Issues for Inclusive and Sustainable Housing
Prof. Sanusi Y.A	Rapid Urbanization, Sustainable Land Use and Spatial Planning
Prof. Jimoh R.A.	Sustainable Building Material

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Dr. Adamu A.	Member	Department of Quantity Surveying, Federal University of Technology Minna, Nigeria
Dr. Ajayi O.O.	Member	Department of Surveying and Geoinformatics, Federal University of Technology Minna, Nigeria
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Dr. Musa Haruna	Member	Urban and Regional planning, Federal University of Technology Minna, Nigeria
Dr. Odumosu J. O.	Member	Department of Surveying and Geoinformatics, Federal University of Technology Minna, Nigeria
Dr. Isah A. D.	Member	Department of Architecture, Federal University of Technology Minna, Nigeria

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ACKNOWLEDGEMENT TO KEYNOTE SPEAKERS AND GUEST SPEAKERS

SETIC 2020 organisers wishes to thank our keynote speakers, and Guest speakers for accepting to create time to share from their rich wealth of knowledge and interact with delegates and participants on varied issues being examined at this year's conference. A brief profile of each keynote speaker is provided here, this would allow for future interaction and networking with them.



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ROUND TABLE PANEL SPEAKERS



Round Table Talk
On Housing Affordability Beyond Covid-19

Main Theme

SUSTAINABLE HOUSING AND LAND MANAGEMENT

Dr. Muhammad Mustapha Gambo
Manager: Policy, Research and Partnerships,
Shelter Afrique, Nairobi, Kenya.

Prof. Dr. Soumia Mounir
Department of Architecture Ecole Nationale
d'Architecture d'Agadir [The National School of
Architecture of Agadir] Morocco

Dr. Said Alkali Kori
General Manager, Projects and Portfolio
Management Family Homes Fund Federal
Ministry of Finance, Abuja.

Ts. Dr. Sasitharan Nagapan,
Department of Civil Engineering Faculty of Civil
Engineering and Built Environment Universiti Tun
Hussein Onn Malaysia, Malaysia

Dr. Mercy Nguavese Shenge
AIA Assoc. Historic District Commissioner,
City of Rockville, MD. USA.

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Istanbul Gelsim University, Istanbul Turkey
Moderator

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Strategies for Disputes Reduction in the Nigerian Construction Process

Aka, A.^{1a}, Omotosho, A.O.^{1b}, & Salisu, O.I.²

¹Department of Building, Federal University of Technology, Minna, Niger State, Nigeria

²Department of Building Technology Education, Federal College of Education (Technical), Akoka, Lagos.

^aomotoshoabisola96@gmail.com; ^bakafemi@futminna.edu.ng; salisusegzy@gmail.com

Corresponding author: omotoshoabisola96@gmail.com

Abstract

Dispute has been observed as a common phenomenon in the construction process and has constituted several problems to project actors and the construction industry. Therefore, this research was conducted to find out the causes of disputes and to develop strategies that can be adopted by construction stakeholders to prevent it frequent occurrence in the construction process. To achieve this aim, a mixed methods research design was adopted in the study. The approach was adopted for robust data collection in the study. In the mixed methods, oral interview and questionnaire were the instrument used for data collection. The oral interview was first conducted with 16 construction stakeholders in five selected firms in Abuja. The data obtained in the interview study was analyzed through content analysis. The findings from the interview exercise served as basis for preparation of questionnaire that was later administered to some randomly selected construction firms in the study context. The data obtained from the questionnaire study was analyzed through descriptive statistics. The findings from the study show that lack of understanding and agreement on the type of contract, contractual payment, breach of contract, and differing site condition are the main causes of disputes in Nigerian construction process. The study concluded that adequate knowledge of contractual document before the start of a project, bringing up contract conditions that are fair to all parties and maintaining a good relationship between the clients, professionals and workers are the strategies that can be adopted to overcome disputes in construction projects.

Keywords: Actors, Construction, Disputes, Framework, Projects.

INTRODUCTION

Construction is an important objective of a design and therefore the conversion of the design by its construction into a useable structure. This can be achieved by the means of human, materials, machineries, equipment and also the proper management of the resources (Peurifoy et al., 2006). The various and nature of activities in construction project makes it complex (Ashworth *et al.*, 2012). This implies that construction projects undergo series of activities that begins with the idea that comes from the brief and proceeds with a feasibility and viability analysis. Thereafter, the production of preliminary design, detailed design, buildability/maintainability analysis, procurement of resources, and maintenance until the building is finally handed over to the project owner. In these processes, dispute finds its root (Chern, 2009).

The parties involved in each of the above-mentioned processes contribute something different, but towards a common goal. Hence, the complexity of construction projects, in conjunction with the

different parties at the various phases, and the enormous unforeseen circumstances such as the management of resources (human and materials) make disputes unavoidable (Yiu and Cheung, 2006; Acharya et al., 2006). Chong (2011) viewed disputes as the internal disharmony existing among project team, which arises as a result of crooked intentions, communication or having the wrong troupe in important positions as the most dominant causes of disputes in the construction industry. Disputes is as essential as harmony because the main reason for seeking harmony is the existence of dispute and this is expected in the construction industry as in other part of human specialization (Lee, 2011). There are many factors that could lead to dispute. Such factors include; uncertainty, conceptual problems, and behaviour, other factors are change in scope, error in documentation, and ambiguous condition of contracts (Cheng *et al.*, 2009).

The impacts of disputes in construction projects cannot be over emphasized. Among these are late project delivery, increased project cost, productivity reduction, profit loss and damaged relationship (Love et al., 2009; Shuib et al., 2011). It is essential to know that dispute has led to non-actualization of the construction projects and the common problem of abandoned buildings in Nigeria. According to Cheung et al. (2004), when a dispute is not promptly and properly resolved in a project, it escalates and eventually requires a litigation proceeding which is extremely costly for the parties concerned.

Professional bodies and government have made substantial efforts particularly through the initiation of professional ethics to reduce the rate of disputes in construction industry, so as to improve project performance. Construction organizations have also made efforts to reduce disputes in projects by implementing renovates practices, technologies and techniques fixed within concepts like knowledge management, supply chain management, lean production. Considering this, disputes continue to prevail (Cheng *et al.*, 2009).

Despite the efforts that have been made by government and different organizations to overcome dispute in construction projects, its epidemic still lingers in Nigerian construction. Therefore, this study was conducted to find out the strategies that can be adopted to reduce disputes for effective projects delivery in the study context.

LITERATURE REVIEW

Concept of disputes

Construction projects are performed in diverse locations with several alteration and unstable conditions. These create tendency of dispute occurrences in projects. Mohammed, et al. (2008) perceived the management of construction project to be conglomerate because it is multi-ethnic and multi-disciplinary. The authors further explained that problems are resolved at all times basically from the project inception to the delivery by the team allotted, which is the principal lever to a successful project. Disagreements can result to one or both parties having grievance against one another which could later lead to conflicts. Dispute develops if a conflict is not properly attended to. When a conflict escalates into dispute, the project undertaken will be vulnerable to delay (Khanaki and Hassanzadeh, 2010; Griffiths et al., 2010). Therefore, it is important to resolve any grievance among parties involved in a conflict before it escalates into dispute.

Forms of disputes in construction projects

The literature indicates that there are several forms of dispute in construction projects. Among these are consultant, client, third party, contractor, management, quality of the work, work nature, site status, sub-contractors, workers and safety issues related disputes (Acharya, *et al.*, 2006; Eken, 2005). Study by Dada (2012) simply categorized disputes into internal and external. The internal disputes are those that occur among parties in a contract, such as clients, contractors, and consultants. While the external disputes are those that occur among project participants and external stakeholders.

Causes of dispute in construction projects

The nature and complexity of construction project contributes primarily to disputes (Cheng, *et al.*, 2009). Hence, the causes of disputes can be summarised as refusal to pay specified sums, delay, termination, variation and misunderstanding in payment procedures (Chern, 2009; Farooqul *et al.*, 2014).

Strategies that can be applied to prevent disputes in construction projects

The literature reveals that alternative dispute resolution (ADR) strategy originated from the United States of America is commonly used as a means of resolving disputes on site. Though, ADR is broad and incorporates various processes, which are different from litigation system of disputes resolution. Therefore, the need for simpler strategies.

RESEARCH METHODOLOGY

The aim of this study is to develop strategies that can be adopted to reduce disputes among construction stakeholders in construction projects. To achieve this aim, survey research design was adopted. In the survey research design, mixed methods were used to obtain the necessary information from the participants of the study. To be precise, interview and questionnaire were the instruments used for data collection in the mixed methods. Interview was first conducted before the questionnaire exercise in the study. The interview was conducted among 16 managers in 16 different registered construction firms in Abuja in the year 2019. The 16 firms were randomly selected among the 32 registered construction firms discovered during the pilot survey phase of the study. The academic qualification of the interview participants ranges from BSc to master's degree. All the participants of the interview exercise were well experienced as they have been involved in different projects and have been working with different construction firms for more than 10 years. Semi-structure interview was conducted with each participant of the study in their respective offices. Each interview lasted for 30 to 45 minutes and took approximately three weeks in duration. Each of the interview was tape recorded and latter transcribed accordingly. The data obtained in the interview study was analysed using content analysis, and the themes that were drawn were used to prepare structured questionnaire that formed the second phase of the study. The essence of the questionnaire was to affirm the findings of the interview phase to a larger sample size in the study context. 150 questionnaires were distributed to randomly selected staff of the 16 case study firms. Out of the 150 distributed, 112 were returned which gave a response rate of 74.7% for the study. The information obtained in the questionnaire was analysed using descriptive statistics.

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DATA PRESENTATION AND DISCUSSIONS

The interview phase

The purpose of the interview study was to find out the extent in which dispute can be prevented in construction projects. This was achieved by seeking the opinions of the participants on the various forms of disputes they have come across or experienced in their previous projects. The causes of the various disputes and the strategies that can be adopted to overcome the disputes were also identified through the participants of the study. The themes obtained from the exercise are explained in the following headings:

The various forms of disputes in construction projects

In the interview conducted, seven forms of disputes were identified from the participants. These includes contractual, land, internal, financial, payment, management, and economic disputes. All the participants agreed that some of these disputes specifically financial and land occur frequently in projects, while some of them such as management and economic seldom experienced in the process. The opinions of the participants on the various forms of disputes and the frequency of their occurrence in construction projects are consisted with the views of Farooqul et al. (2014) and Dada (2012) on disputes resolution in projects.

Causes of dispute in construction projects

In the interview conducted, inadequate procurement/tendering method, bridge of contract, inadequate brief, poor communication, lack of understanding and agreement on the type of contract, differing site and incomplete design information condition were emphasized by six of the participants as the major causes of disputes in construction projects. While four of the participants identified change order, absence of team spirit among members of the project, misplacement of priority, discrepancies/ambiguities in the contract documents, inadequate descriptions of the preliminary items in the bill of quantity (BOQ), improper planning/site management and failure to use specified material, skilled operatives/ recognized methods as the main causes of disputes in construction projects.

Further, three of the participants affirmed government intervention, fraud act of the party and parties failing to identify and deal with issues on time as the main factors responsible for disputes in projects. Whilst, the remaining three of the participants emphasized that inaccurate response to the problems presented by one party to another party in the contract, failure of sharing risks, unrealistic claims for variation of works by contractors, limited resources (scarcity) and the contractor's failure to price properly for the works as the causes of disputes in projects. The opinions of all the participants are synonymous with the findings of Missis (2012), Peansupap and Cheang (2015) on the causes of disputes in construction projects. Similarly, Mba (2013) had earlier identified inadequate procurement/tendering method, bridge of contract and poor communication as the major causes of disputes in construction projects.

The strategies that can be applied to prevent disputes in construction projects.

According to the participants of the interview study, seven strategies can be adopted by project actors to prevent disputes in construction projects. These strategies are to:

- Design or make contract conditions fair enough to all parties;

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- Understand contractual document before proceeding into agreement;
- Proper planning and organization of payment and schedule;
- Make payment as at when due;
- Maintain a good relationship between the clients, professionals and workers;
- Engage organization professionals, and
- Engage the organization trained artisans/labours.

These findings are consistent with the opinions of Sinha and Wayal (2007) and Ntiyakunze (2011) on the various strategies that can be applied to reduce disputes in construction projects.

The survey phase

The questionnaires survey was conducted to compare the collective perceptions of clients and construction professionals from the themes that were drawn in the interviews section of the study to a large sample size. The outcomes of the exercise are presented as follow:

Ranking of the respondents' perceptions on disputes in construction projects

The MIS of all the respondents in the survey study ranges from 4.66 to 3.78 (Table 1). These imply that all the respondents agreed on the variables discovered in the interview phase as the main form of disputes in construction projects.

Table 1: Ranking of respondents' perception on forms of Disputes in projects

S/N	Causes of Disputes	5	4	3	2	1	NR	TS	MIS	SI	RANK
1.	Contractual Dispute	77	32	3	0	0	112	531	4.66	0.529	1 st
2.	Payment Dispute	63	45	2	2	0	112	505	4.51	0.396	2 nd
3.	Land Dispute	64	41	6	1	0	112	504	4.50	0.414	3 rd
4.	Internal Dispute	58	51	3	0	0	112	503	4.49	0.306	4 th
5.	Financial Dispute	59	36	10	3	0	112	485	4.33	0.710	5 th
6.	Management Dispute	36	63	4	10	0	112	468	4.18	0.490	6 th
7.	Economic Dispute	32	39	25	16	0	112	423	3.78	1.040	7 th

KEY: 5= Strongly agree, 4= Agree, 3= Neutral, 2= Disagree, 1= Strongly disagree, **NR**= Number of respondents, **TS**= Total score, **MIS**= Mean Item Score, **RII**= Relative importance index, **SI**= Significant index.

Ranking of the causes of disputes in construction projects

The MIS of all the respondents in this question also ranges from 4.65 to 4.13 (Table 2), which also indicate total agreement in the findings of the interview and questionnaire sections of the study.

Table 2: Ranking of respondents' perception to the causes of disputes

S/N	Causes of Disputes	5	4	3	2	1	NR	TS	MIS	SI	RANK
1.	Lack of understanding and agreement on the type of contract	74	37	1	0	0	112	521	4.65	0.497	1 st
2.	Differing site condition	72	36	4	0	0	112	516	4.61	0.559	2 nd
3.	Bridge of contract	68	39	5	0	0	112	511	4.56	0.582	3 rd
4.	Inadequate procurement/Tendering method	65	43	4	0	0	112	509	4.54	0.568	4 th
5.	Incomplete design information	56	55	1	0	0	112	503	4.49	0.520	5 th
6.	Poor communication	59	47	6	0	0	112	501	4.47	0.600	6 th
7.	Improper planning and site management	54	51	6	1	0	112	494	4.41	0.637	7 th
8.	Failure to use specified materials, skilled operatives and recognized methods	53	49	10	0	0	112	491	4.38	0.647	8 th

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9.	Discrepancies/ ambiguities in contract documents	44	63	5	0	0	112	487	4.35	0.565	9 th
10.	Inadequate brief	43	64	5	0	0	112	486	4.34	0.562	10 th
11.	Inadequate descriptions of the preliminary items in the BOQ	45	61	2	4	0	112	483	4.31	0.685	11 th
12.	Change order	34	75	3	0	0	112	479	4.28	0.506	12 th
13.	The absence of team spirit among members of the project	39	58	13	2	0	112	470	4.20	0.708	13 th
14.	Government intervention;	41	52	14	5	0	112	465	4.15	0.808	14 th
15.	Misplacement of priority	41	47	21	3	0	112	462	4.13	0.807	15 th

KEY: 5= Strongly agree, 4= Agree, 3= Neutral, 2= Disagree, 1= Strongly disagree, **NR**= Number of respondents, **TS**= Total score, **MIS**= Mean Item Score, **RII**= Relative importance index, **SI**= Significant index.

Methods of preventing disputes in construction projects

Based on the MIS obtained in this question (Table 3), it can be emphasized that the information obtained in the questionnaire section is in agreement with the interview study.

Table 3: Ranking of respondents' perception to the methods of preventing disputes

S/N	Methods of preventing Disputes	5	4	3	2	1	NR	TS	MIS	SI	RANK
1.	Understanding contractual document before proceeding into agreement	83	29	0	0	0	112	531	4.74	0.44	1 st
2.	Designing contract conditions that are fair to all parties (allocating projects risks fairly to all parties) to unstable price of materials)	81	31	0	0	0	112	529	4.72	0.45	2 nd
3.	Proper planning and organization of payment and schedule	78	34	0	0	0	112	526	4.70	0.46	3 rd
4.	Maintaining a good relationship between the clients, professionals and workers	72	38	2	0	0	112	518	4.63	0.52	4 th
5.	Payment as at when due	58	41	13	0	0	112	493	4.40	0.69	5 th
6.	Engaging the organization trained artisans/labours	43	53	16	0	0	112	475	4.24	0.69	6 th
7.	Engaging the organization professionals	44	49	19	0	0	112	473	4.22	0.72	7 th

KEY: 5= Strongly agree, 4= Agree, 3= Neutral, 2= Disagree, 1= Strongly disagree, **NR**= Number of respondents, **TS**= Total score, **MIS**= Mean Item Score, **RII**= Relative importance index, **SI**= Significant index.

CONCLUSION

Based on the study conducted, it can be concluded that seven forms of disputes are liable to arise in construction projects. Among these are contractual, payment and land disputes which are prevalent in every project. While management and economic disputes are not that common. It can also be said that there are twenty-two causes of disputes in projects. The identified causes such as lack of understanding and agreement on the type of contract, differing site condition, bridge of contract, inadequate procurement/tendering method and incomplete design information were observed as the main factors responsible for disputes in construction projects.

Based on the identified causes of disputes discovered in this study, understanding contractual document before proceeding into agreement, designing contract conditions that are fair to all

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parties, proper planning and organization of payment and schedule are hereby recommended as the strategies that can be adopted by project actors to overcome disputes in construction projects. Therefore,

- Parties to a contract should understand contractual document before proceeding into agreement.
- Contract conditions should be designed to be fair to all parties i.e., allocating projects risks fair enough to all parties.
- There should be proper planning and organization of payment and schedule by both clients and contactors before the commencement of projects.
- Clients should engage the organization professionals in executing project.

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