

ANNUAL REPORT 2017-2018

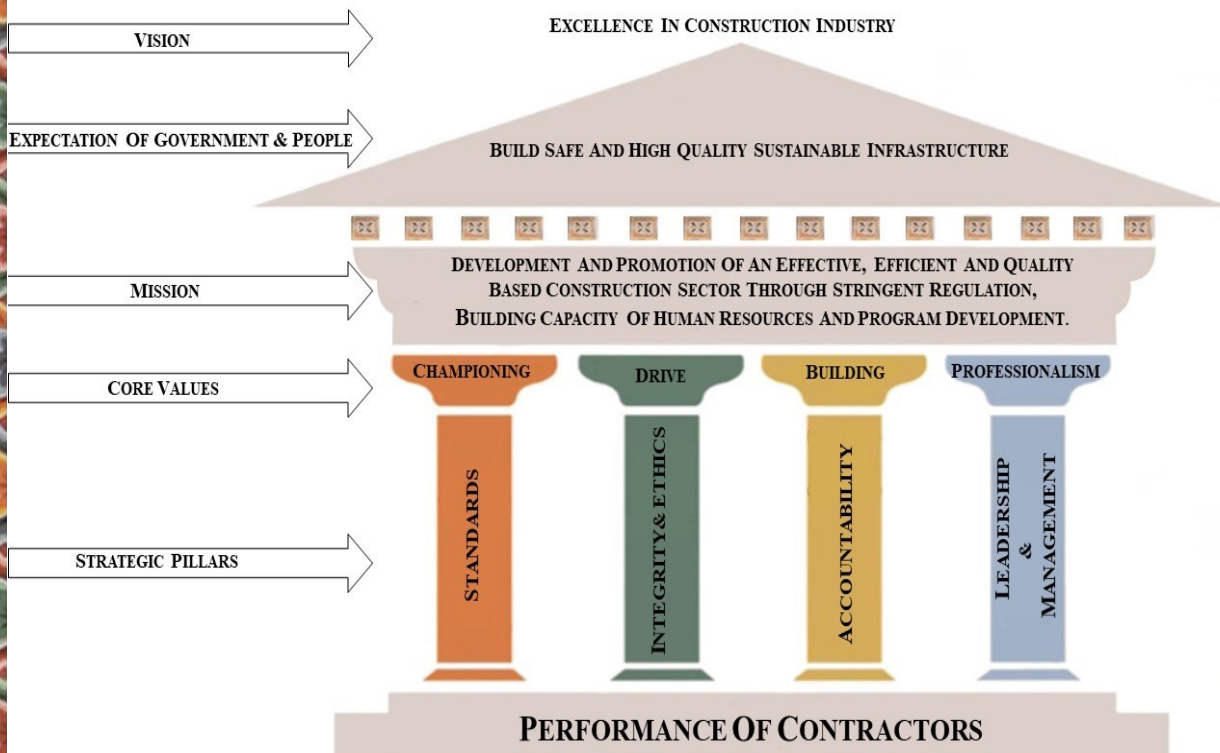


“Striving towards Construction quality: through professionalization and technology”

བཟོ་བསྐྱུན་གོང་འཕེལ་བཀོད་ཆོགས།

**CONSTRUCTION DEVELOPMENT
BOARD**

We have to live by the infrastructure that we build and it is our responsibility to build Safe and Sustainable Infrastructure for future generations



The construction industry plays major role contributing about 16.28% of GDP and employing 2.56% of the labor force. With the growth in number of construction works across the country, paramount importance must be attached to Quality and Public Safety while building infrastructures as Bhutan is not been spared by the fury of natural hazards as the country lies in the seismic zone IV & V. Further the Glacier Lake Outburst Flood (GLOF) due to global warming poses another risk to the people of Bhutan. Viewing the vulnerability of the country from natural disasters, greater effort must be placed to build resilient and sustainable infrastructure which can reduce the impact and magnitude of future disaster. Towards this, the Construction Development Board (CDB) as regulator and promoter of the construction industry adopted the following strategic thrust towards building Safe and High Quality Sustainable Infrastructure:

STANDARD: Considering the importance of building Safe and High Quality Sustainable Infrastructure, it is imperative to have the uniformity and standard in all spheres of guidelines, specifications, codes, design and drawings of any documents pertaining to construction to benchmark the standards. There is no substitute for Standards and Quality and they don't happen by accident. Therefore, it is our responsibility to carry out proper planning with due diligence prior to execution of any projects.

ACCOUNTABILITY/ETHICS/INTEGRITY: The key success of building Safe and High Quality Sustainable Infrastructure ultimately depends on ethics/Integrity and accountability of the construction professionals and contractors. Therefore, CDB will intervene and nurture the self-less spirit of contractors and construction professionals to execute the projects with accountability and integrity driven primarily by an intrinsic urge to uphold the highest quality infrastructure.



"I have absolute confidence in our ability to achieve great things. People who travelled to Bhutan more than a hundred years ago have documented their admiration for the ingenuity and sophistication of the Bhutanese in governance, agriculture, architecture, engineering, irrigation, and various other sciences. Today we have more knowledge and resources in our grasp, and the possibilities are immense."

- His Majesty The King, National Day, 2014

1.	Message from Chairperson.....	7
2.	From Director's Desk.....	9
3.	Background	
3.1	Inception of CDB & Core Values.....	11
3.2	Functions of CDB.....	12
3.3	Board Members.....	13
3.4	Heads of CDB Secretariat.....	14
3.5	Organization Structure.....	15
3.6	Budget and Expenditure	16
4.	Services :	
4.1	CDB services in brief.....	17
4.2	Registration, Classification & Categorization of Contractors	18
4.2.1	Contractors registered for last 5 years.....	20
4.2.2	Bhutanese Contractors registered with CDB.....	20
4.2.3	Contractors revoked/suspended by ACC & Court of Law.....	22
4.2.4	Engineers registered with Construction firm.....	25
4.2.5	Personnel registered in Construction Industry	26
4.2.6	Non-Bhutanese Contractors registered with CDB.....	27
4.2.7	On-going construction works.....	29
4.2.8	Earth Moving Equipment in Construction Industry.....	30
4.3	Consultants registered with CDB.....	31
4.4	Architects registered with CDB.....	32
4.5	Promotion & Professionalism in Construction Industry	
4.5.1	Induction & Refresher training for Contractors	33
4.5.2	E-tool & CiNET training	35
4.6	Arbitration	
4.6.1	Cases in arbitration	37
4.6.2	Observations & Findings	38
5.	Monitoring	
5.1	Monitoring of Office establishment	39
5.2	Defaulting contractors penalized.....	40
5.3	Monitoring of On-going Construction sites	42
6.	Technology Promotion & Research	
6.1	Discrepancies in APS ratings.....	46
6.2	Bidders participation.....	47
6.3	Study on Qualification of Bidders during the technical evaluation.....	48
6.4	Works awarded below & above estimate cost.....	49
6.5	Study on Time and Cost Overrun.....	50
6.6	Participation of Bhutanese Contractors in Hydro Power Project.....	53
6.7	Mechanization.....	54
7.	Events of CDB.....	56



It is an honour for me to present the 1st ever Annual Report on behalf of Construction Development Board. The report encapsulates significant achievements and activities pursued over the last one year (2017-2018).

Bhutan witnessed unprecedented socio economic development guided by the visionary leadership of our Monarchs and the unique philosophy of Gross National Happiness emanating from the Golden Throne. Public infrastructure vis-a-vis construction of buildings, roads, bridges and water supply etc., has formed the major capital investment as the Government appropriations reveal that about 60% of the total outlay is allocated for procurement, out of which 80% accounts for procurement of construction works. Given the highest potential to generate wealth, employment and sustainable growth within the framework of GNH, the construction industry has significantly contributed about 16.28% of GDP and employed 2.56% of the labour force.

With the growth of construction works, the sector is infused with 4125 contractors and many projects are often confronted with time and cost overrun attributing to substandard quality works. Whilst those barriers stretch across multiple sector and addressing them could lead to a significant pickup and propel the construction industry. To this, CDB as central agency has to play greater role to contribute towards building a strong and vibrant construction industry with an efficient, effective, quality based and corruption free construction industry.

In our effort of addressing above issues and inspired by objective of 12 Five Year Plan “**Just, Harmonious and Sustainable Society through enhanced Decentralization**” the CDB continues to focus on a number of strategies aimed at strengthening the construction industry. Capacity building of contractors and construction professional has been highly regarded to keep abreast with fundamental knowledge of construction and embark professionalism. Recognizing the importance of promoting greater transparency, ethic and integrity within construction professionals, CDB signed a Memorandum of Understanding with Anti-Corruption Commission & Royal Audit Authority. Viewing the importance of collaboration and to bring about greater synergy with overseas, effort were also made to sign Memorandum of Understanding (MoU) with Construction Industry Authority Philippines, Construction Industry of Thailand and Construction Industry Development Council, India in the area of cooperation of enhancing capacity building of contractors/engineers through trainings, seminars, workshops, visits and to bench mark the good practices. Other initiatives included drafting of National Construction Industry policy - a roadmap for Bhutan’s construction industry.

Considering the importance of building a strong and dynamic construction economy as envisioned by His Majesty the King, I take this opportunity to call upon our Engineers, Architects, Planners, Contractors and other line of stakeholders to work hand-in-hand with common goal of transforming our construction industry into an advanced high quality and productive industry at par with best in region which can generate greater value, foster inclusiveness, and offer employment for our youths.

Finally, I would like to put on record our sincere appreciation to Director and Officials of CDB Secretariat for their profound hard work and commitment in accomplishing all planned targets of 2017-2018 and bringing yet another successful year to close for the cause of construction industry.

Tashi Delek!

(DORJI CHODEN)

**Chairperson
Construction Development Board**



It is a privilege for me to bring out first Annual Report (2017-2018) of the Construction Development Board (CDB). Construction being the major economic activity of Bhutan contributing 16.28% to the real GDP and employing 2.56% of the labour force employing 4,125 contractors, 67 consultants, 6624 construction professionals and engaging 804 earth moving equipment.

The Royal Government of Bhutan envisions the construction industry to deliver safe, high quality sustainable infrastructure to the citizens in order to facilitate the socio-economic development of Bhutan, while preserving our culture, strengthening our local industry and creating local jobs through processes that are efficient, technologi-

cally advanced, and environment friendly, so as to showcase Bhutan as an example of modern, innovative and green construction industry with a favourable ecological footprint. Therefore, it is important to provide the construction industry information for our policy makers, investors, procuring agencies, developers, contractors, consultants, construction professionals, manufacturers, suppliers and all the other key players in the industry to address the current issues and achieve the aforesaid vision.

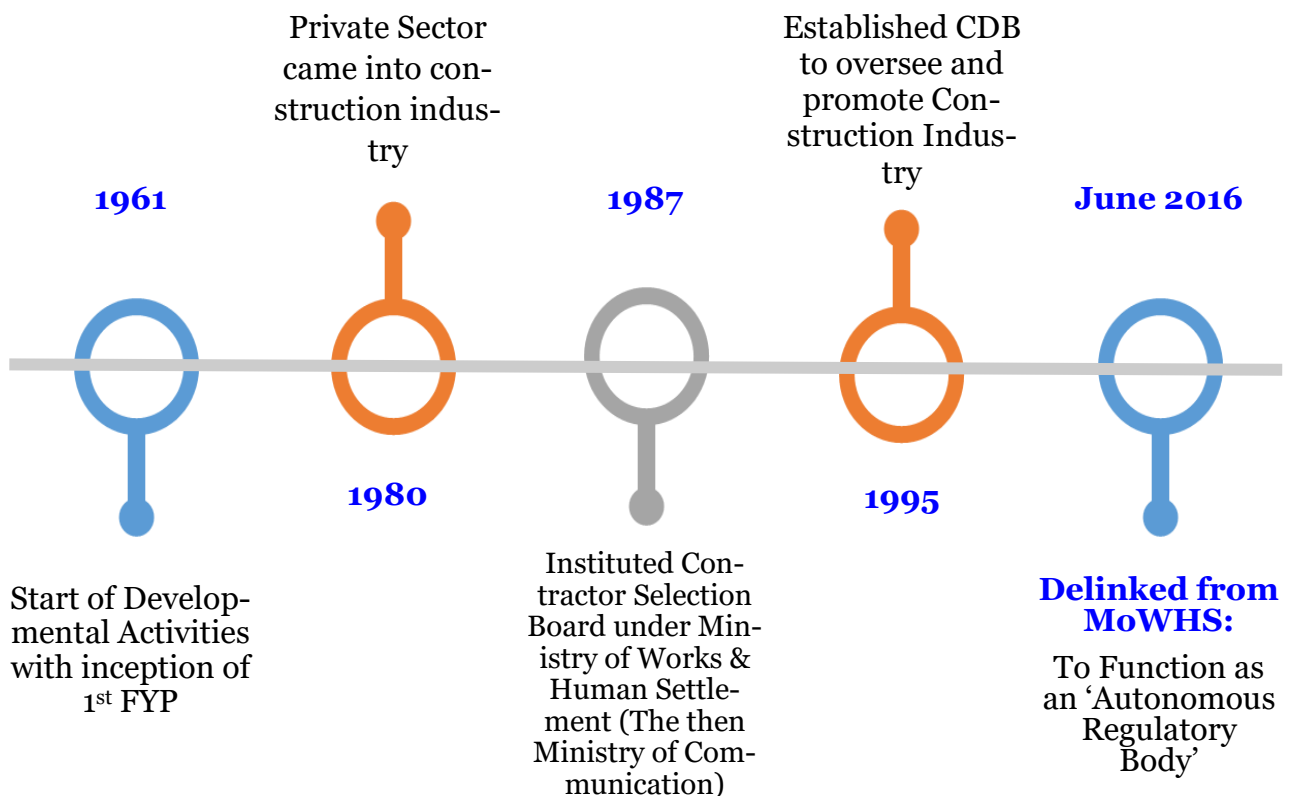
This report covers amongst others, the registration of contractors by class and category, non-Bhutanese contractors, consultants, construction professionals and major earth moving equipment engaged in construction, capacity building programs, bidders participation and their qualification, construction disputes resolution, compliance monitoring, abnormal bids, Time & Cost Overrun in execution of projects, possibilities of participation of Bhutanese contractors in Hydro Power Projects, employment opportunities, mechanization and revenue generation by CDB.

Eventually, this report is prepared with the hope to enhance professionalism in our construction industry with special focus on standardization, skills, knowledge through research and innovations, promote the best practices through enforcement and regulation by forging partnership among the key players, develop construction industry as inclusive employment generating sector, promote green growth and sustainable financing, improve service delivery and coordination through strengthened institutional mechanism.

Tashi Delek!

(Phub Rinzin)
Director
Construction Development Board

Inception of CDB



Core Values

Champion leadership, construction management, standards, ethics, integrity, accountability and transparency in construction industry.

Drive towards stringent regulations and enforcement in construction industry to enhance professionalism.

Build safe, sustainable and quality infrastructures.

Functions of CDB

- Regulate the registration, certification, classification, categorization of contractors and to cancel, upgrade, down grade, suspend or reinstate registration of contractors.
- Regulate the registration of consultants and construction professionals.
- Monitor compliance to registration requirement of construction firm and on-going construction sites.
- Maintain construction industry information.
- Promote Information and Communication Technology in construction industry.
- Facilitate development of construction industry in cooperation with appropriate institutes/agencies.
- Promote in cooperation with appropriate institutes/agencies, effective construction technologies and mechanization in construction industry.
- Conduct training on best practices and awareness programs to promote technical and managerial capacity within the construction industry.
- Promote, develop and undertake research in any matters relating to construction industry;
- Assess and refer any dispute relating to tampering of document, fronting and deceptive practices in construction industry to relevant agencies.
- Facilitate construction dispute resolution through arbitration.
- Ensure fair and equal access to the award of contract.
- Provide clarifications on technical aspects related to the construction industry.

Board Members



Lyonpo Dorji Choden
Ministry of Works and Human Settlement
CHAIRPERSON



Mr. Dawala
DIRECTOR GENERAL
Department of National
Properties Ministry of Fi-
nance
MEMBER



Mr. Sonam Wangdi
DIRECTOR
Department of Labour
Ministry of Labour & Human
Resources
MEMBER



Mr. Tenzin
DIRECTOR
Department of Roads
Ministry of Works & Human Set-
tlements
MEMBER



Mr.
Mewang Gyeltshen
DIRECTOR
Department of Renewable Ener-
gy Ministry of Economics Af-
fairs
MEMBER



Mr. Karma Dupchuk
DIRECTOR
Department of Engineering Ser-
vices
Ministry of Works & Human
Settlements
MEMBER



Mr. Thinlay Jamtsho
PRESIDENT
Construction Association of
Bhutan
MEMBER



Mr. Ugyen Penjor
Rep. of Medium & Small Class
Contractors
MEMBER



Mr. Phub Rinzin-
DIRECTOR
Construction Development
Board
MEMBER SECRETARY

Heads of CDB Secretariat



**Mr. Wangdi
Gyaltshen**
2003–2012

After serving in various positions in the civil service, **Mr. Wangdi Gyaltshen** became the Executive Director of Construction Development Board in November 2003. He served until June 2012 after which he was transferred as Director of Department of Civil Aviation, Ministry of Information & Communication.



Mr. Phala Dorji
2012–2014

Mr. Phala Dorji became the Director General of Construction Development Board in June 2012 to June 2014. Prior to appointment as CDB Director, he has served as the Director General for Department of Civil Aviation, Ministry of Information & Communication.



Dasho Rinzin Dorji
2014–2016

Dasho Rinzin Dorji started his career in 1984 under Department of Industry. After serving in various positions in the civil service, Dasho became the Director of CDB in March 2014. He served as CDB Director General until August 2016.

In August 2016 His Majesty the King appointed him as a New Secretary of Ministry of Agriculture and Forests.

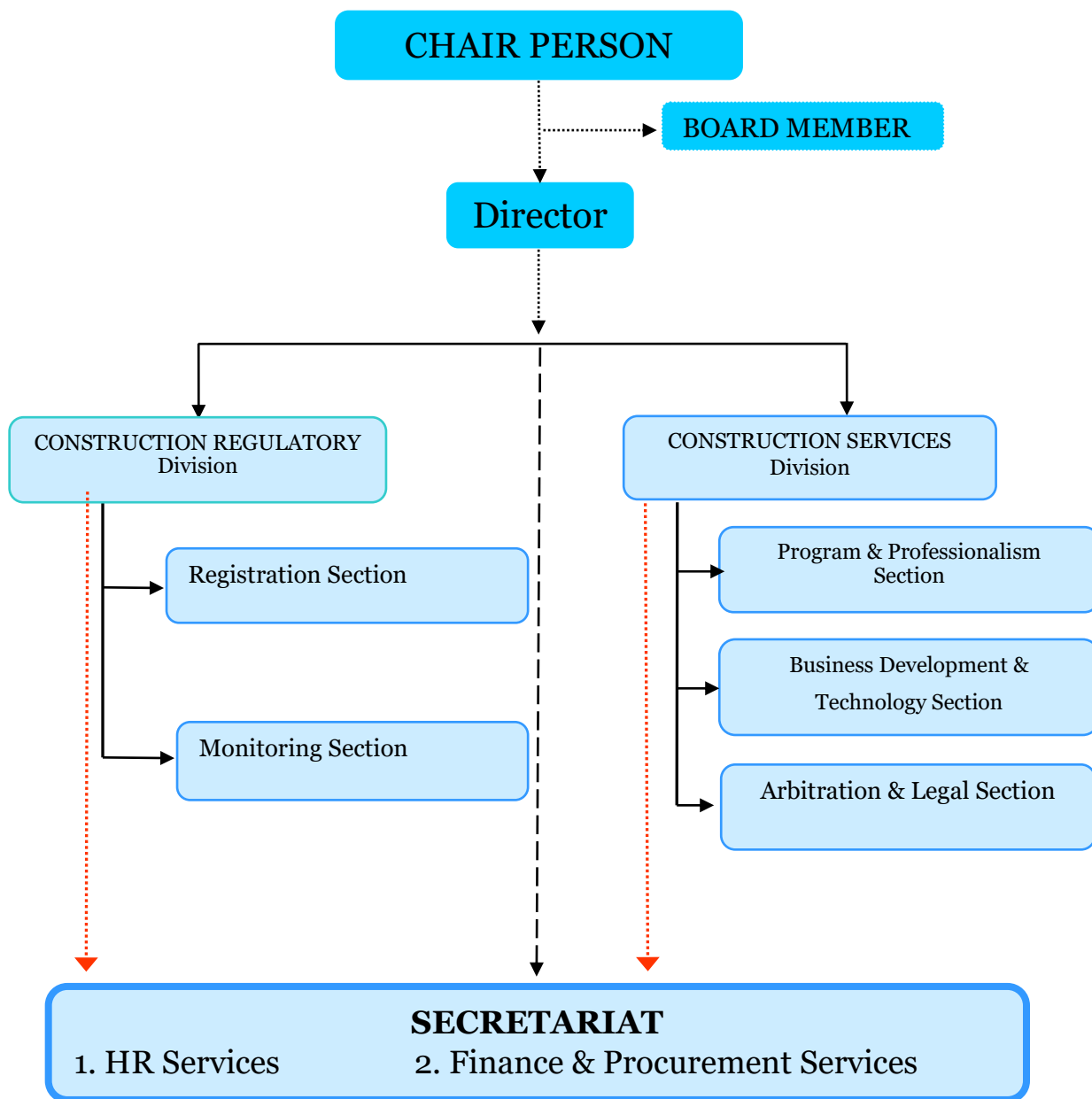


Mr. Phub Rinzin
2017– Present

Director Mr. Phub Rinzin began his career as Engineer in July 1992 with the Ministry of Works and Human Settlement. Director served in various positions in Ministry of Works and Human Settlement.

He became the Director of Construction Development Board in June 2017 and is the current Director of the Construction Development Board.

Organization Structure



BUDGET & EXPENDITURE**Annual Budget:****Nu. 22.1 Million**

Sl #		Approved (In million)
1	Capital Budget	7.659
2	Current Budget	14.407
	Total:	22.066

Budget Expenditure:**Nu. 18.8 Million**

Sl #		Expenditure (In million)
1	Capital Budget	6.189
2	Current Budget	12.609
	Total:	18.798

Revenue:**Nu. 17.9 Million**

Sl #	Applicant Type	Service Type	Amount Collected (Nu.)
1	Architect	Late Fee	25,500.00
		New Registration	62,000.00
		Renewal of CDB Certificate	33,000.00
2	Consultant	Late Fee	87,500.00
		New Registration	84,000.00
		Renewal of CDB Certificate	166,500.00
3	Contractor	Late Fee	2,692,300.00
		New Registration	3,414,000.00
		Renewal of CDB Certificate	11,362,500.00
		Total:	17,927,300.00

1. Registration Services

- Registration of contractors
- Registration of consultants
- Registration of Architects
- Registration of Special trade

2. ICT Services (e-Zotin)

- **Online registration** - Online registration services provided by the Secretariat for Contractors, Consultants, Architects and Specialized Trades.
- **e-tool** - Online evaluation tool for procurement of civil works carried out by government procuring agencies.
- **CiNET** - Interface for corporate, NGOs and donor funded projects to update the work information.
- **CRPS** - for managing contractors, consultants, architects and specialized trade.

3. Legal Services

- Construction Dispute Resolution through Arbitration
- Grievance Re-dressal

4. Capacity Development and Promotion Services

- Trainings
- Awareness programs
- Construction Expo.
- Institutional linkages
- Construction Technology and Best Practices

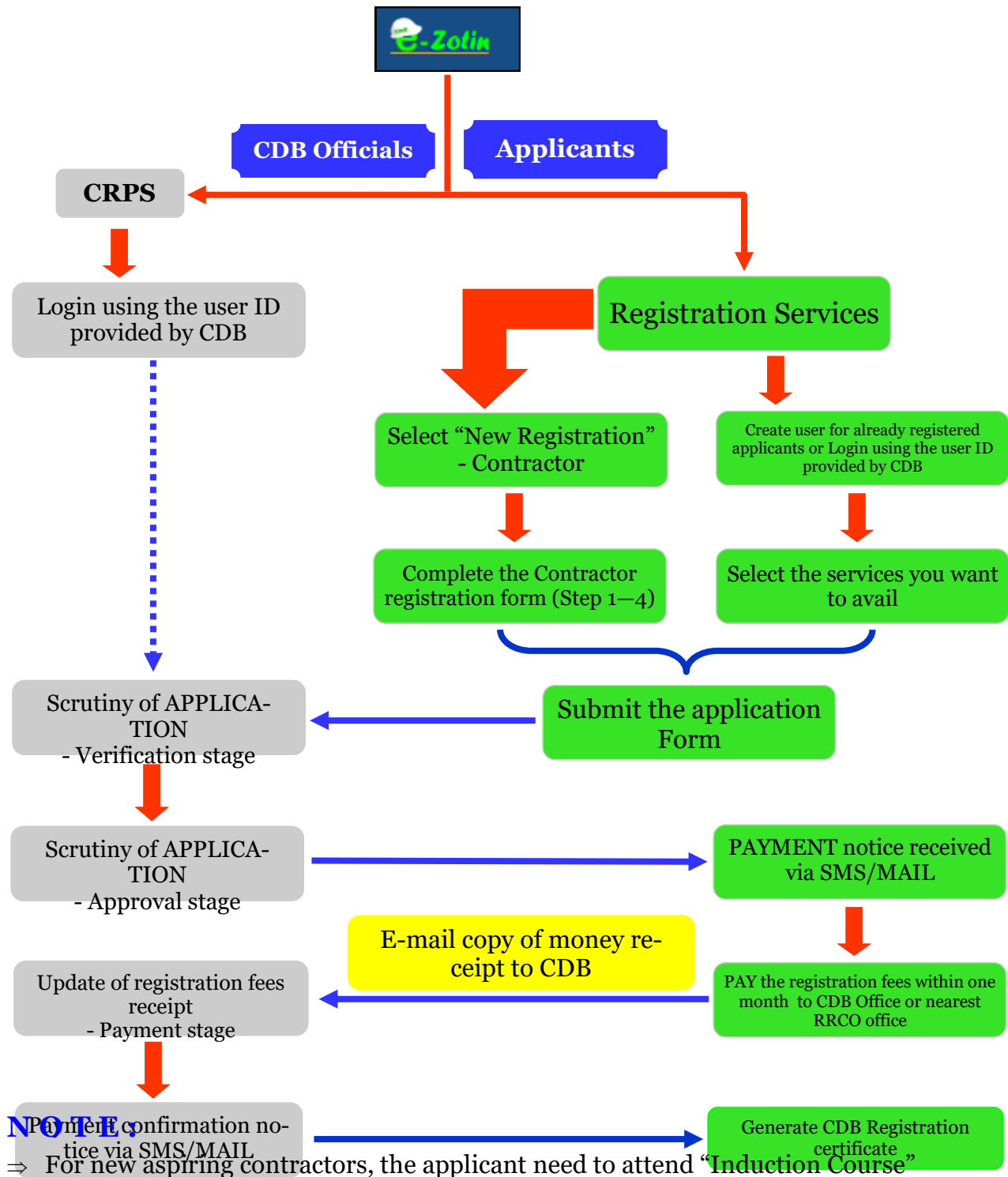
Registration, Classification & Categorization of Contractors

Contractors are classified and registered under one of the three classifications namely: **Large**, **Medium** and **Small** for each category of infrastructure projects.

Infrastructure projects will be categorized into 4 separate **Headings** itemized under reference **W1 to W4**. Each heading generally covers the types of works that are executed under the Government's infrastructure program. A brief description of each Heading is given in the Table below:

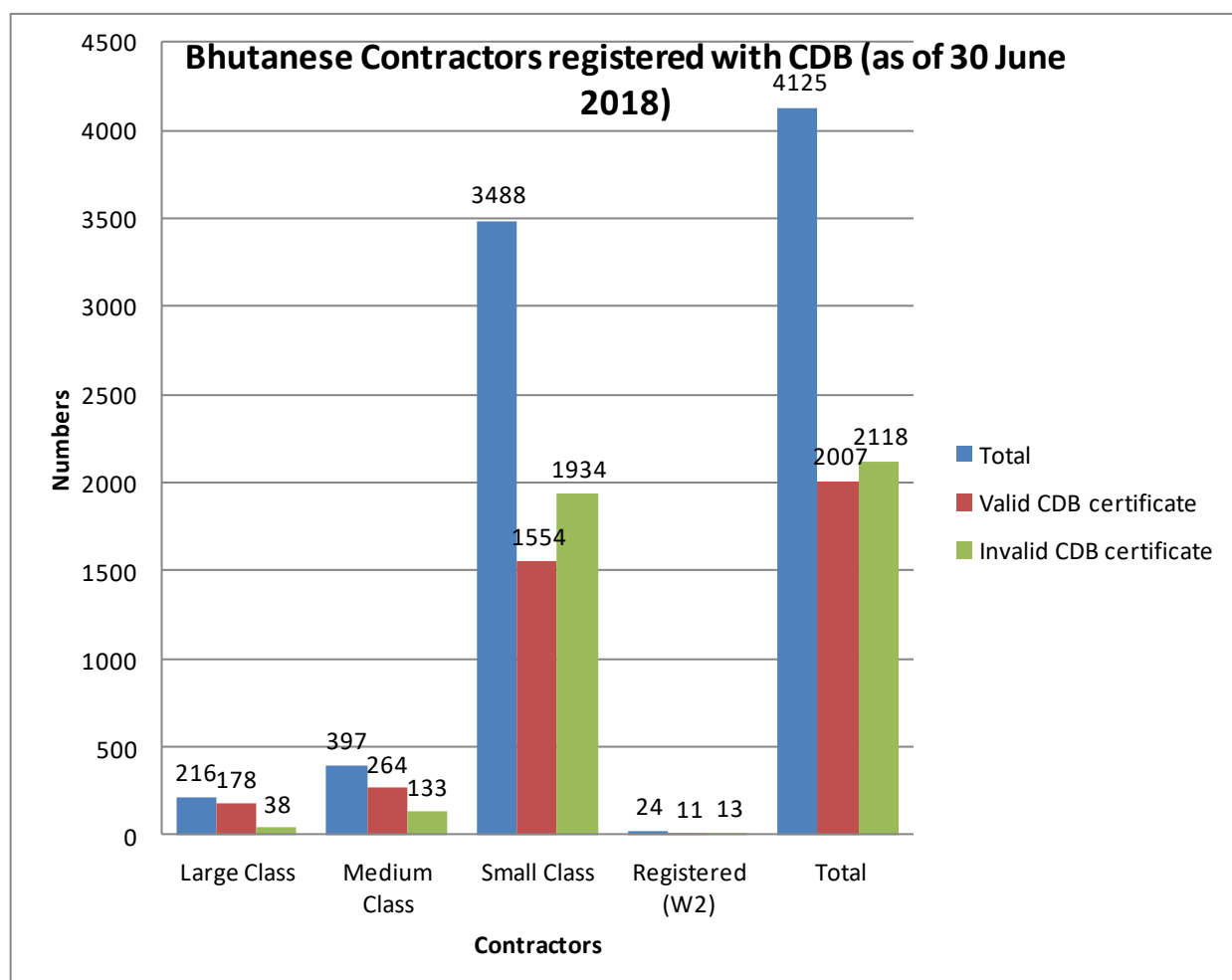
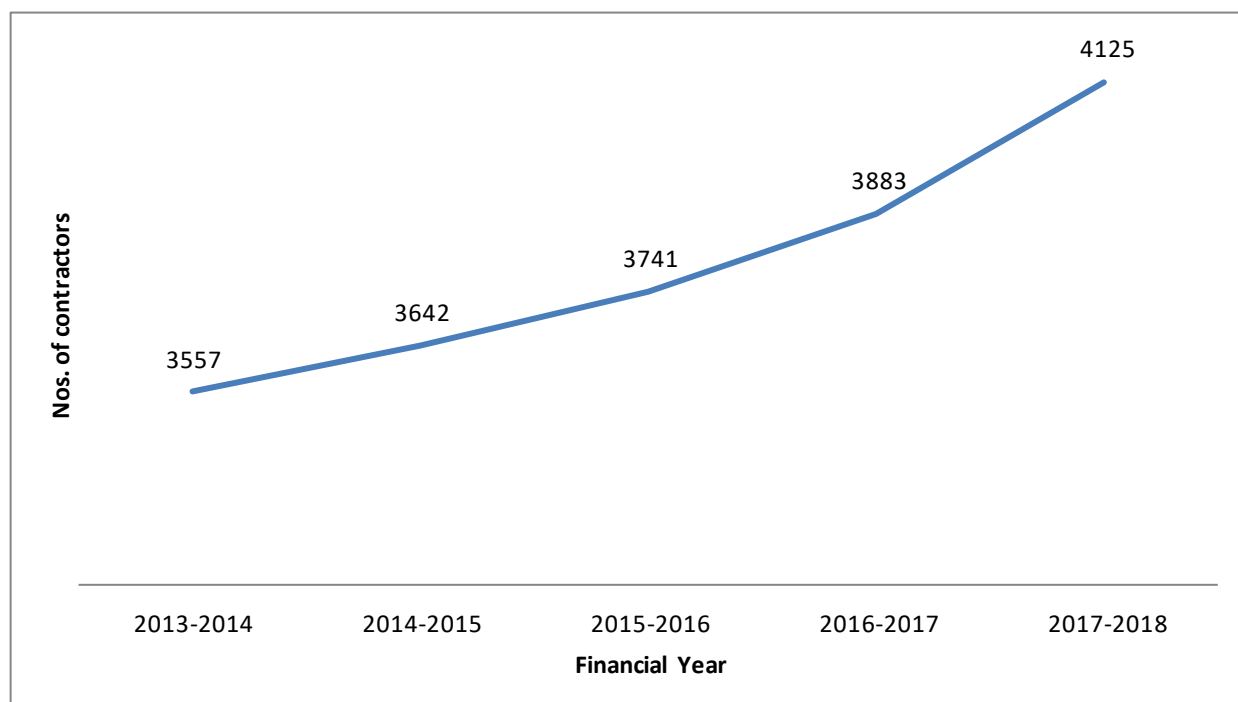
CATEGORIES	HEADINGS	DESCRIPTIONS
W1	Roads & Bridges	Construction of roads (laterite, prime and seal Flexible or rigid pavement); timber or concrete or steel bridges, culverts, surface drainage, kerbs, footways, pedestrian overhead crossings, airport runways and aprons
		Rehabilitation, reinstatement, improvement to embankment, slope stabilization, provision of adequate drainage system, re-gravelling or resealing existing pavement, repair, improvement or reconstruction of road sections or repair or reconstruction of damaged or destroyed bridges.
		Construction of all types of bridges, aqueducts and flyovers
W2	Traditional Bhutanese Painting/ Finishing Works	Internal and external finishing and decorations of all structures in traditional Bhutanese paintings.
W3	Buildings, Irrigation, Drainage, Flood Control, Water Supply & Sewerage	Construction of all kinds of buildings including that of timber, masonry, concrete or steel. Services such as storms and sanitary drainage system.
		Rehabilitation and restoration of all physical facilities in damaged or destroyed buildings.
		Construction of drainage systems, terminal buildings, hangers, warehouses Depots, any appurtenant structures.
		The construction includes all the internal electrification(new and renovation, repair), plumbing, painting and finishing work other than Internal and external finishing and decorations of structures in traditional Bhutanese paintings.
W4	Power & Telecommunication Works	Construction, rehabilitation and improvement of civil works in hydropower facilities, such as dams tunnels and power generating plant buildings. Installation of underground cables, overhead transmission and distribution lines, compound lighting, construction of substations including the installation of switchgear, transformers and low voltage distribution board.
		Construction of Substations & Transmission Lines.
		Laying ducts and construction of junction boxes and of manholes for telephone cable networks.

Contractor Registration process map



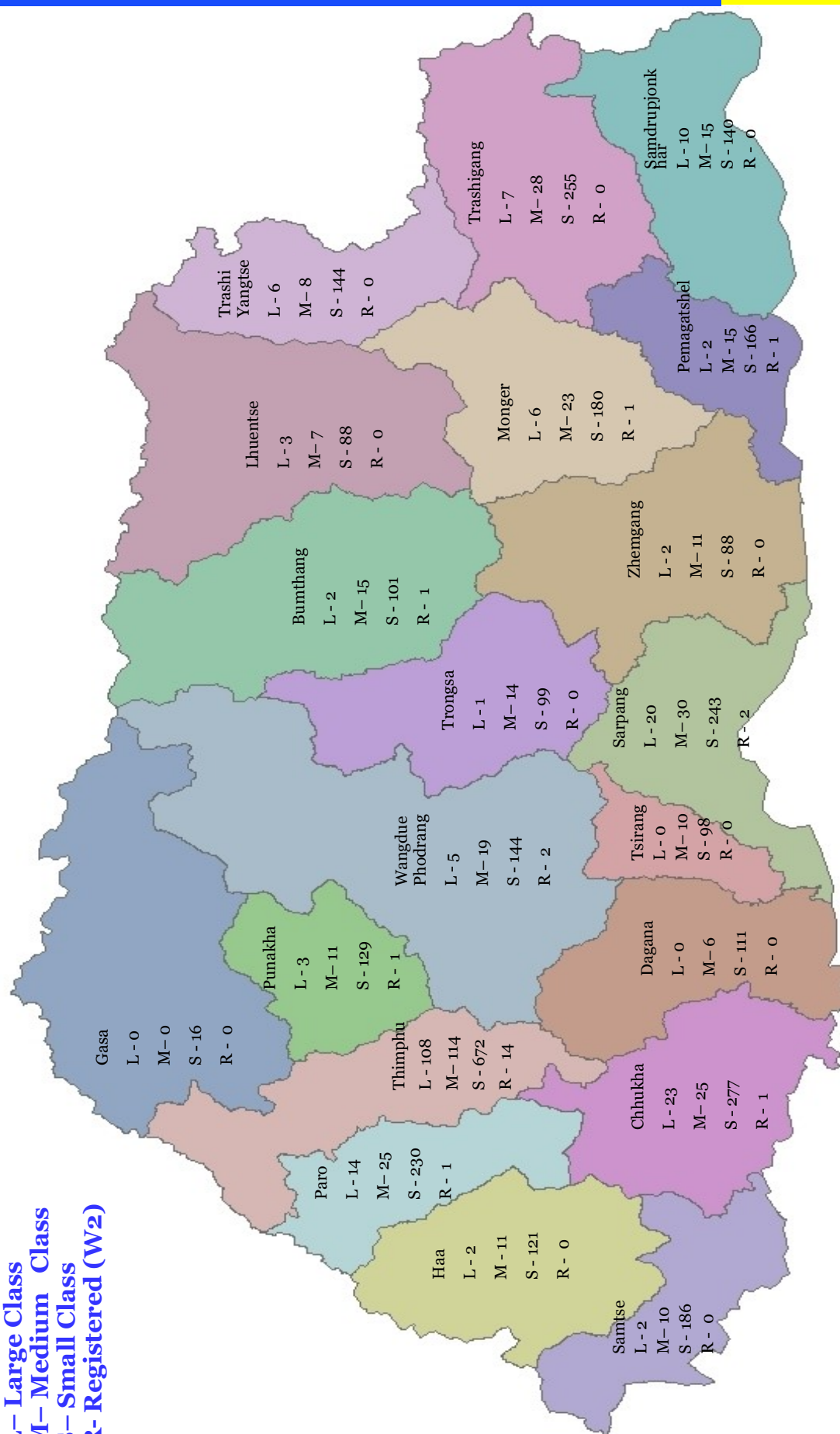
1. **Creating an Account:** <https://www.youtube.com/watch?v=Fk9VheAwEmQ>
2. **Applying for Renewal :** <https://www.youtube.com/watch?v=C4KcwtlTF3E>
3. **Applying for a Service:** <https://www.youtube.com/watch?v=T45halQZxso>

Number of Contractors registered for last FIVE years



Numbers of Contractors (Dzongkhag wise):

L- Large Class
M- Medium Class
S- Small Class
R- Registered (W2)



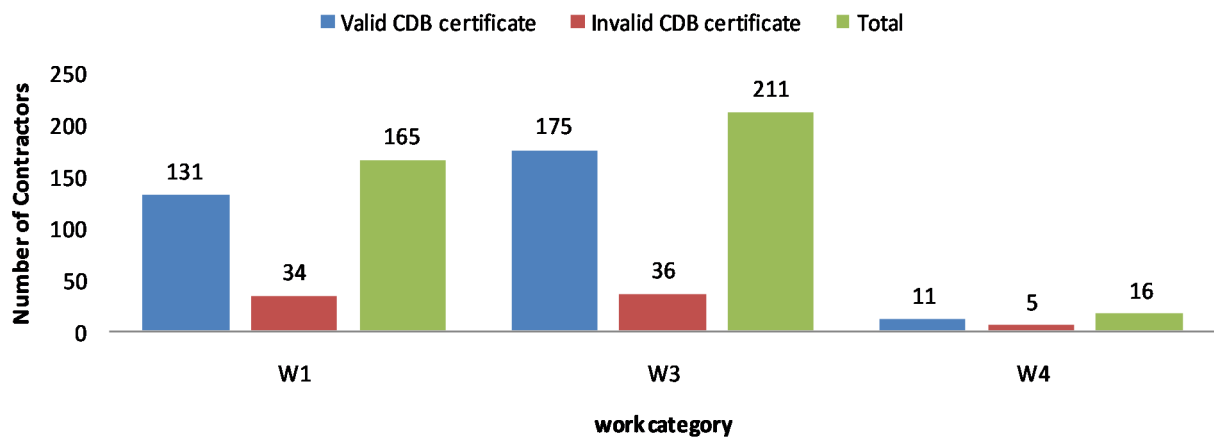
List of contractors revoked/suspended by Anti Corruption Commission and Court of Law:

Sl. No	CDB No.	Firm Name	Dzongkhags	Status
1	1176	DONDHEN Construction	Mongar	Revoked
2	1180	AKASHA Construction	Mongar	Revoked
3	1528	PEMA ELECTRICAL Construction	Paro	Suspended
4	1787	PEL DRUK Construction	Samtse	Suspended
5	1812	DHOENSUM Private Limited	Thimphu	Suspended
6	1838	GOMBU Electricals	Thimphu	Suspended
7	1873	Phurba Painting & Construction	Thimphu	Revoked
8	1981	KESANG Construction	Thimphu	Suspended
9	2248	GLT Builders	Thimphu	Revoked
10	2267	KHANDU Construction	Haa	Suspended
11	2452	C.D Construction	Thimphu	Suspended
12	2482	SONAM Construction	Thimphu	Revoked
13	2510	SONAM PENJOR Construction	Trongsa	Revoked
14	2542	WANGDI Construction	Thimphu	Revoked
15	2637	U. WANGCHUK Construction	Paro	Revoked
16	3009	NEO Construction	Thimphu	Revoked
17	3640	T & C L Construction	Thimphu	Revoked
18	3766	CHEMKHAR Construction	Trashiyangtse	Revoked
19	3972	GADHEN Construction	Sarpang	Revoked
20	4029	KINGA YONTEN Construction	Thimphu	Revoked
21	4122	JUNGSHIP Construction	Thimphu	Revoked
22	4371	DUPTHO NORPHEL Construction	Trashigang	Revoked
23	4444	DAA Construction	Paro	Suspended

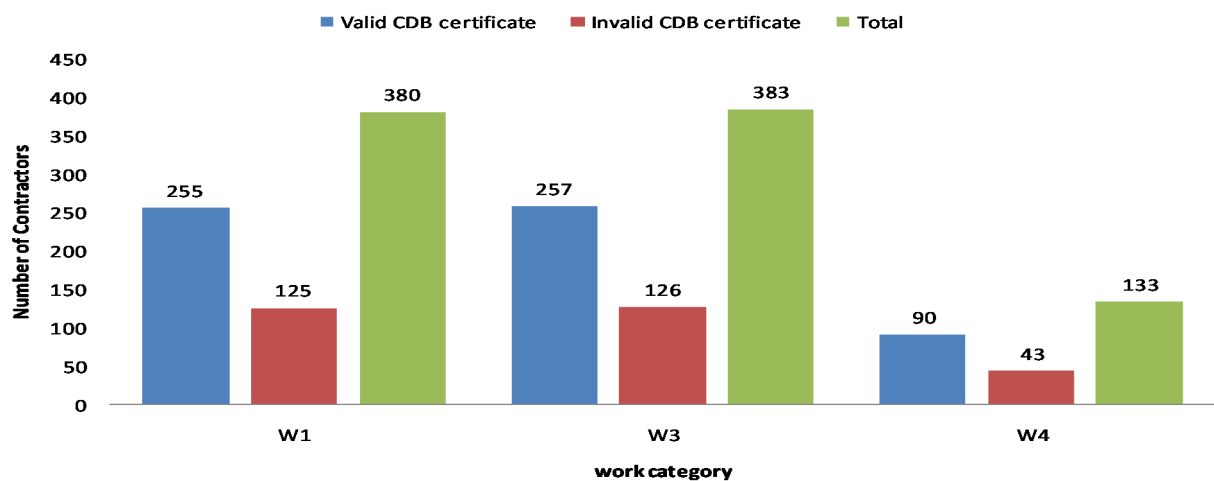
List of contractors revoked/suspended by ACC and Court of Law:

Sl. No	CDB No.	Firm Name	Dzongkhags	Status
24	4737	UGYEN NORBULING Construction	Paro	Revoked
25	4807	2 BROTHERS Construction	Trashiyangtse	Revoked
26	5041	TASHI NORZIN Construction	Pemagatshel	Revoked
27	5138	REWANG TSHAM NE Construction	Paro	Revoked
28	5238	TNW Construction	Haa	Revoked
29	5296	RADHING Construction	Thimphu	Suspended
30	5570	SAMPHEL DENDUP Construction	Pemagatshel	Revoked
31	5749	KINLEY TSHOKEY DORJI Construction	Paro	Revoked
32	5924	TNT Builders	Samtse	Revoked
33	5991	LANGA DORJI Construction	Trashigang	Revoked
34	6015	JANGCHUB WANGDI Construction	Trashigang	Revoked
35	6157	DAKKA Construction	Paro	Revoked
36	6174	T.D. Dendup Construction	Thimphu	Suspended
37	6411	LAKHER Construction	Zhemgang	Revoked
38	6480	DANIYAL Construction	Sarpang	Suspended
39	6569	DRUK PASSANG Construction	Chukha	Revoked
40	6610	DRUK PENJOR Construction	Haa	Suspended
41	6627	DRUK NYESER Construction	Wangdue Phodrang	Revoked
42	6830	NIDUP TSHERING Construction	Dagana	Revoked
43	7183	DELEK Builders Private Limited	Samdrup Jongkhar	Suspended
44	7432	SHARCHOG YOEZER Construction	Trashiyangtse	Revoked
45	7504	SCD Construction	Paro	Revoked
46	7521	CONTINENTAL CONSTRUCTION [BHUTAN] Pvt. Ltd.	Chukha	Revoked
47	7657	SONAM RABSEL Construction	Chukha	Suspended

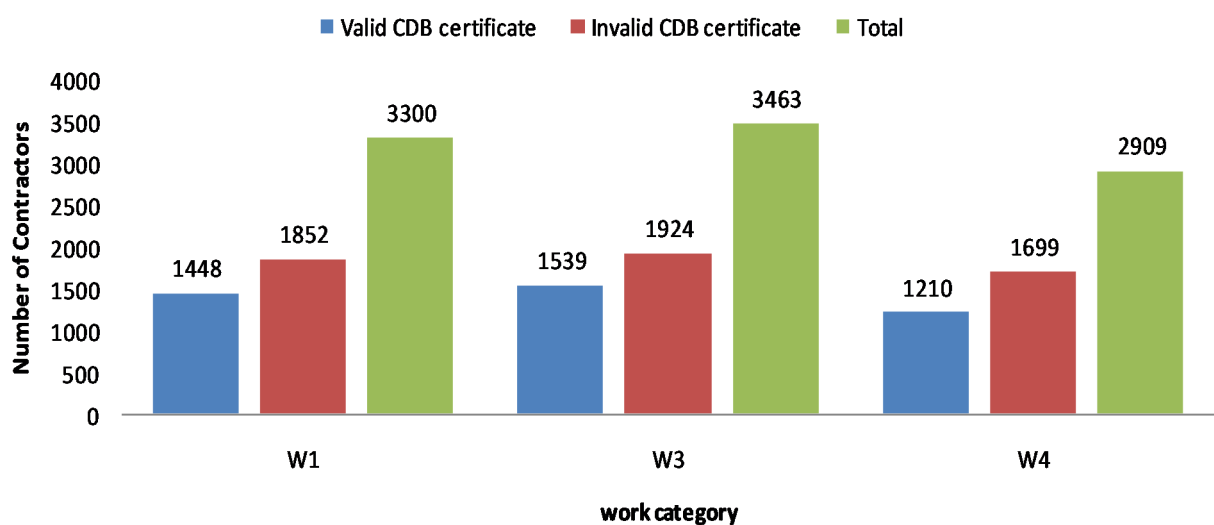
Number of Large class contractors registered by work category



Number of Medium class contractors registered by work category



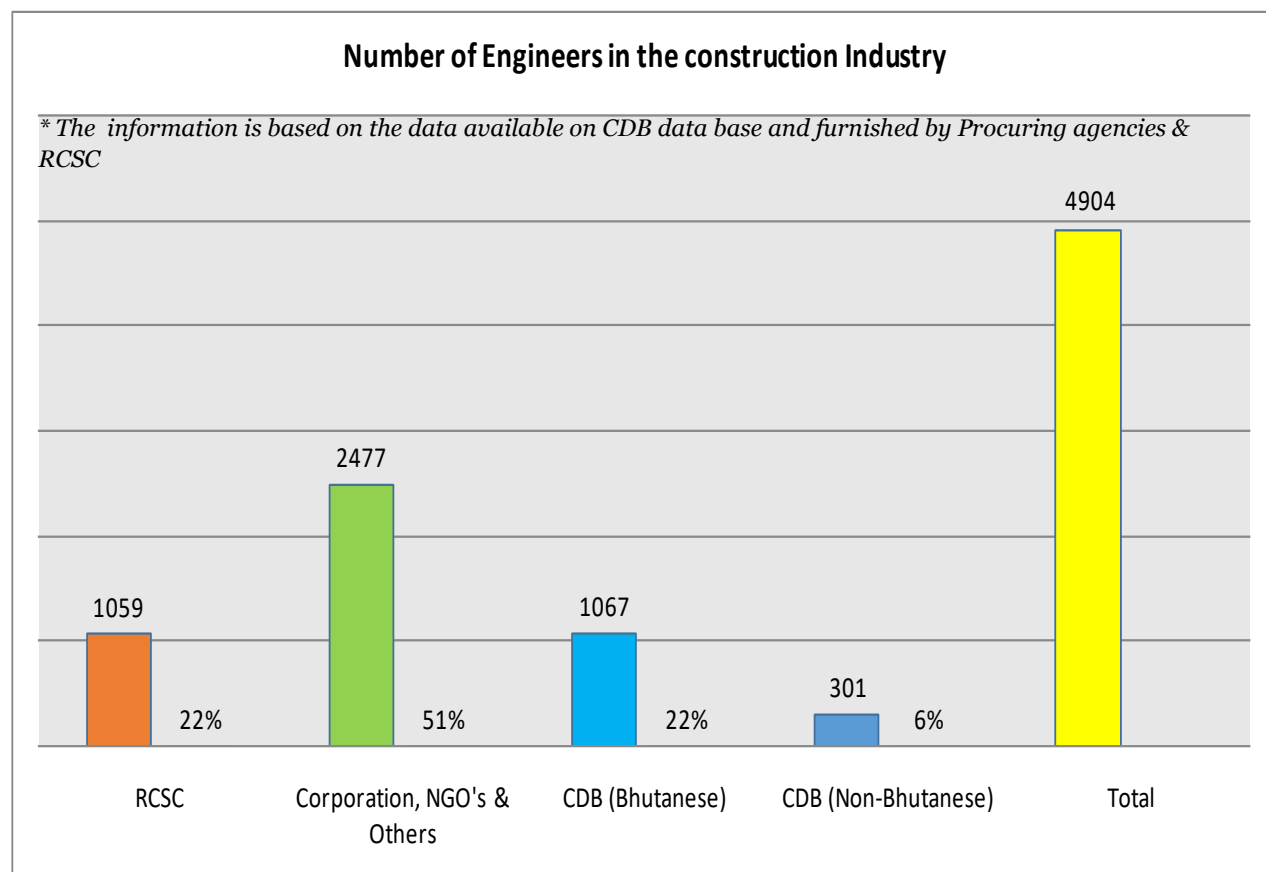
Number of Small class contractors registered by work category



No. of Engineers registered with Construction Firms (CDB data base):

Civil Engineers			
Degree		Diploma	
Bhutanese [Degree]	Non-Bhutanese [Degree]	Bhutanese [Diploma]	Non-Bhutanese [Diploma]
424	151	520	148
Total: 575		Total: 668	
Total Civil Engineers: 1243			

Electrical Engineers			
Degree		Diploma	
Bhutanese [Degree]	Non-Bhutanese [Degree]	Bhutanese [Diploma]	Non-Bhutanese [Diploma]
55	2	68	0
Total: 57		Total: 68	
Total Electrical Engineers: 125			

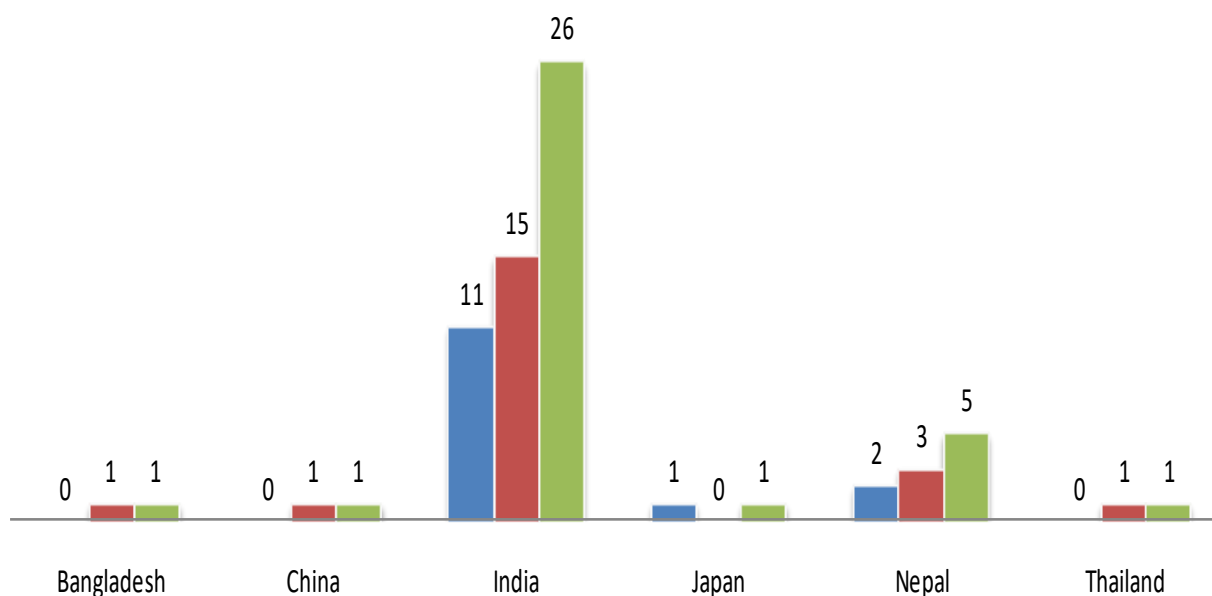


No. of other Personnel registered/employed in Construction Industry:

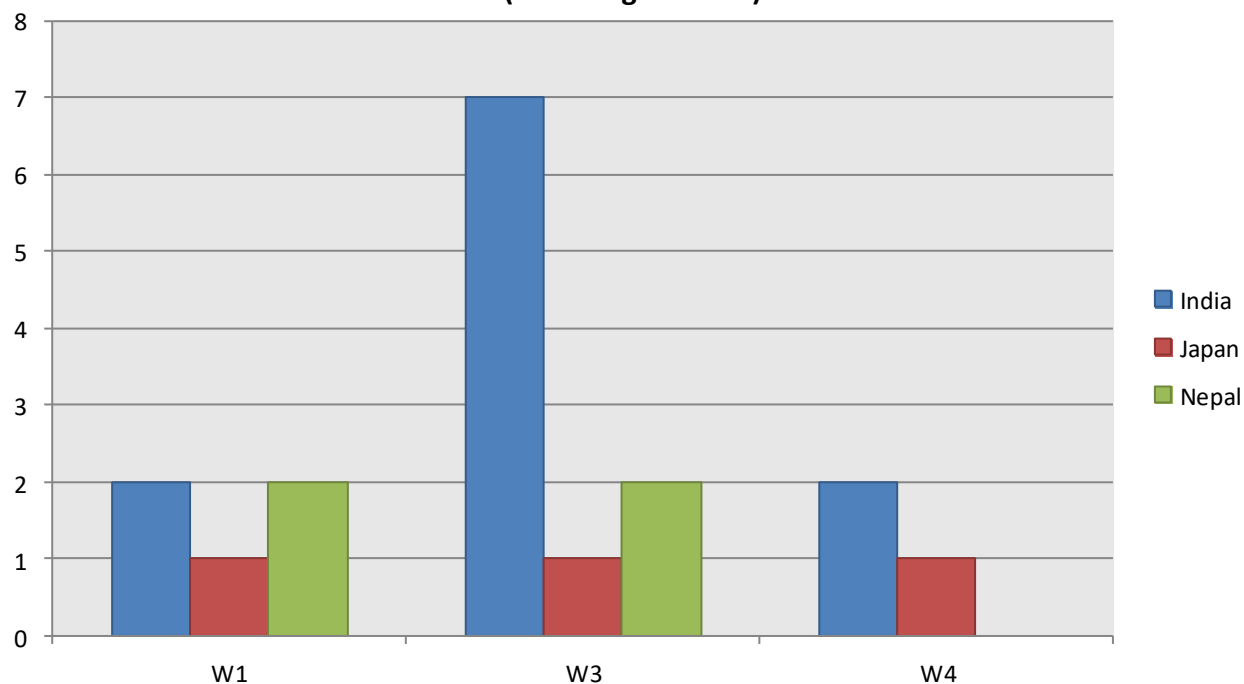
Designation	Employed in Contractors	Employed in Consultants	Total
Accountant/ADM/Manager/MD/Messenger/OA/PO/Liaison Officer	1093	20	1113
Architect	5	43	48
Site Supervisor/Mason	3642	5	3647
Chief Executive Officer	22	2	24
Engineer (Civil/Electrical)	1623	73	1696
Driver/operator/Blaster	26	1	27
Environment and Social/Geologist	0	14	14
Lab Technician/Carpenter/Plumber	17	0	17
Material Engineer	0	1	1
Mechanical Engineer/Welder	8	1	9
Survey Engineer	14	14	28
TOTAL	6450	174	6624

Non Bhutanese Contractors registered with CDB

Valid Registration Invalid Registration Total registered



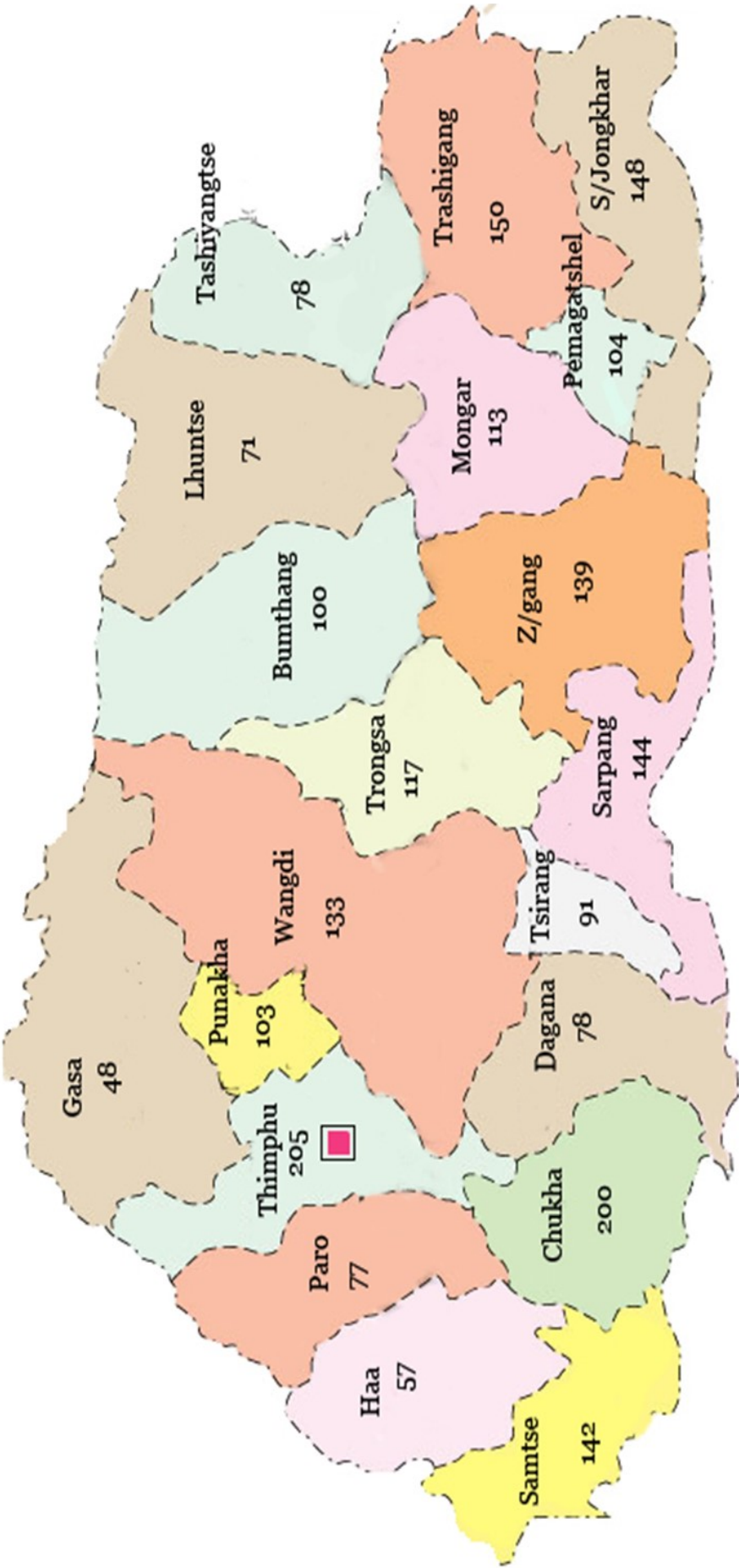
Non Bhutanese Contractors registered by Category (Valid Registration)



Detail list of Non-Bhutanese Contractors registered with CDB:

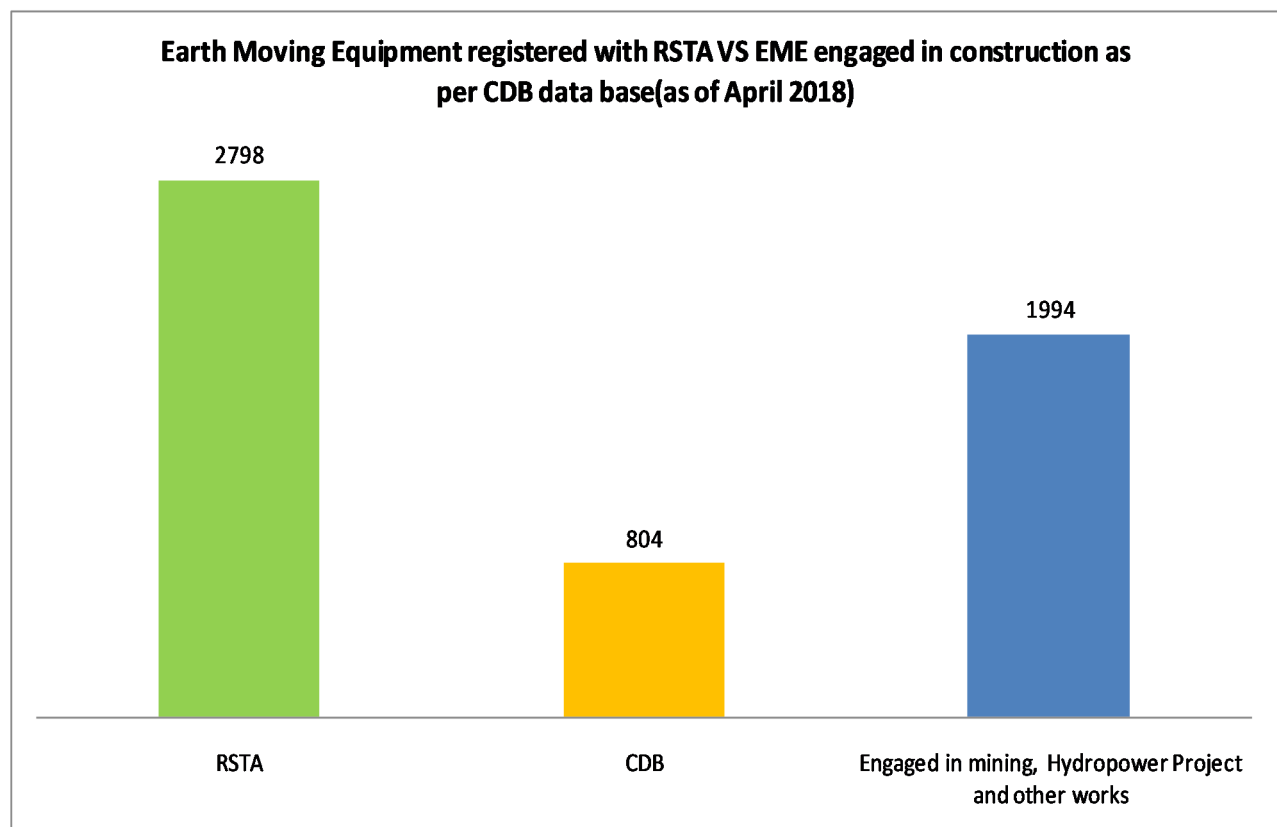
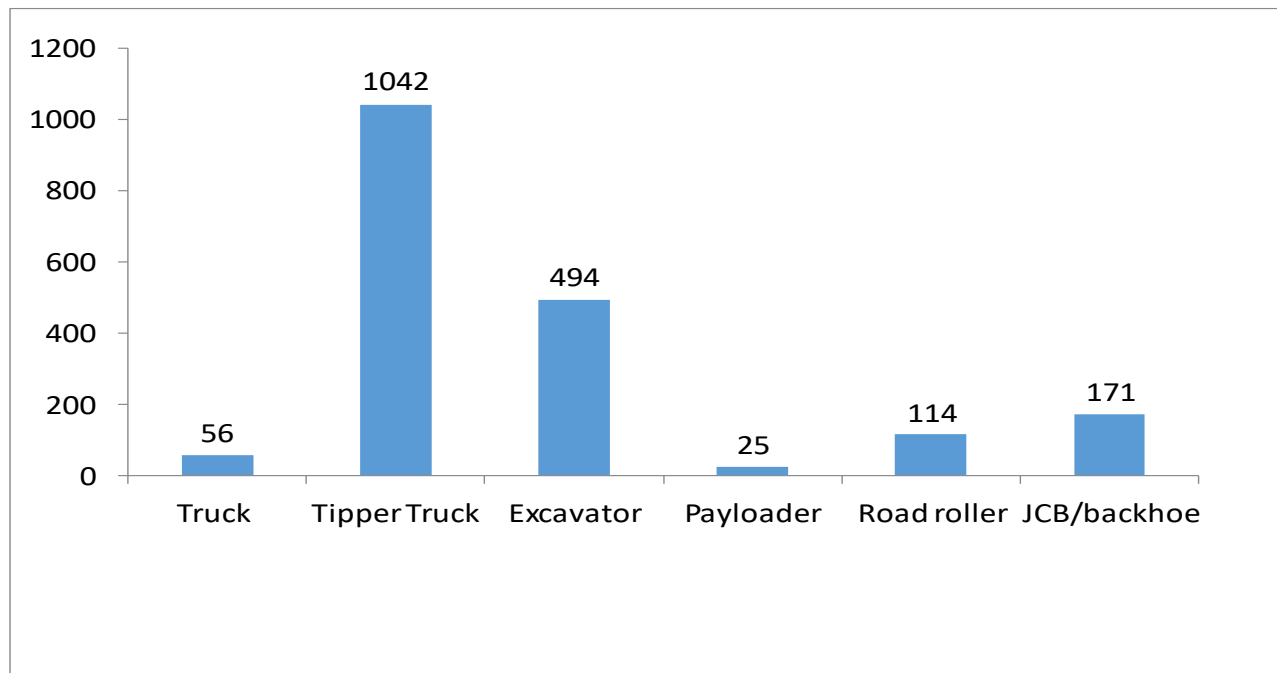
Sl.No	Name of Firm	Country	Status
1	Merx Exponere Media Pvt. Ltd.	India	Valid
2	TUNDI Construction Private Limited	Nepal	Valid
3	SUNSHINE OVERSEAS Private Limited	India	In - Valid
4	KALIKA Construction Private Limited	Nepal	In - Valid
5	BILDRITE INFRASTRUCTURE Private Limited	India	In - Valid
6	HOSMAC INDIA Private Limited	India	In - Valid
7	KARAM CHAND THAPAR & BROS. (COAL SALES) LTD.	India	In - Valid
8	ABHYUDAYA HOUSING & CONST. Pvt. Ltd.	India	In - Valid
9	MARUSHIN SHITAKA Const. Co. Ltd.	Japan	Valid
10	HUBEI HUAZHOU INDUSTRY Co. Ltd.	China	In - Valid
11	IMP POWERS Ltd.	India	In - Valid
12	KASHMIRILAL Constructions (P) LTD.	India	In - Valid
13	RAMKY INFRASTRUCTURE Limited	India	In - Valid
14	KARMA NORBU BHUTIA	India	In - Valid
15	ENVIRO ASSOCIATES & CONSULTANTS	India	In - Valid
16	ABM WATER COMPANY	Bangladesh	In - Valid
17	D2S INFRASTRUCTURES Pvt. Ltd.	India	In - Valid
18	SCHNEIDER ELECTRIC INFRASTRUCTURE LTD.	India	Valid
19	ANK Construction Company Private Limited	Nepal	In - Valid
20	MACROCOSM Builders	India	In - Valid
21	CONSTRUCTION LINES COMPANY LIMITED	Thailand	In - Valid
22	CE Construction Pvt. Ltd.	Nepal	In - Valid
23	P.K Construction Co.	India	In - Valid
24	CREDIBLE ENGINEERING CONST. PROJECTS PVT. LTD	India	In - Valid
25	RAMKY ENVIRO ENGINEERS Ltd.	India	Valid
26	IRCON INTERNATIONAL LIMITED	India	In - Valid
27	Emars Mining & construction Private Limited	India	Valid
28	OFFSHORE INFRASTRUCTURES LIMITED	India	Valid
29	Optech Engineering Pvt. Ltd.	India	Valid
30	Pritam Singn & Son Pvt. Ltd.	India	Valid
31	Mech Industry	India	Valid
32	Trilok Infrocon(India) Pvt. Limited	India	Valid
33	Shivam Transcon Pvt. Ltd	India	Valid
34	SANTALALL & BROTHERS	India	Valid
35	Lama Construction Co.Pvt.Ltd	Nepal	Valid

Numbers of on-going works as per CDB data base (as of May 2018)



Total ongoing works: 2298
Max. ongoing works at Thimphu Dzongkhag @ 205
Min. at Gasa Dzongkhags @ 48

Major Construction Equipment engaged in construction as per CDB data base

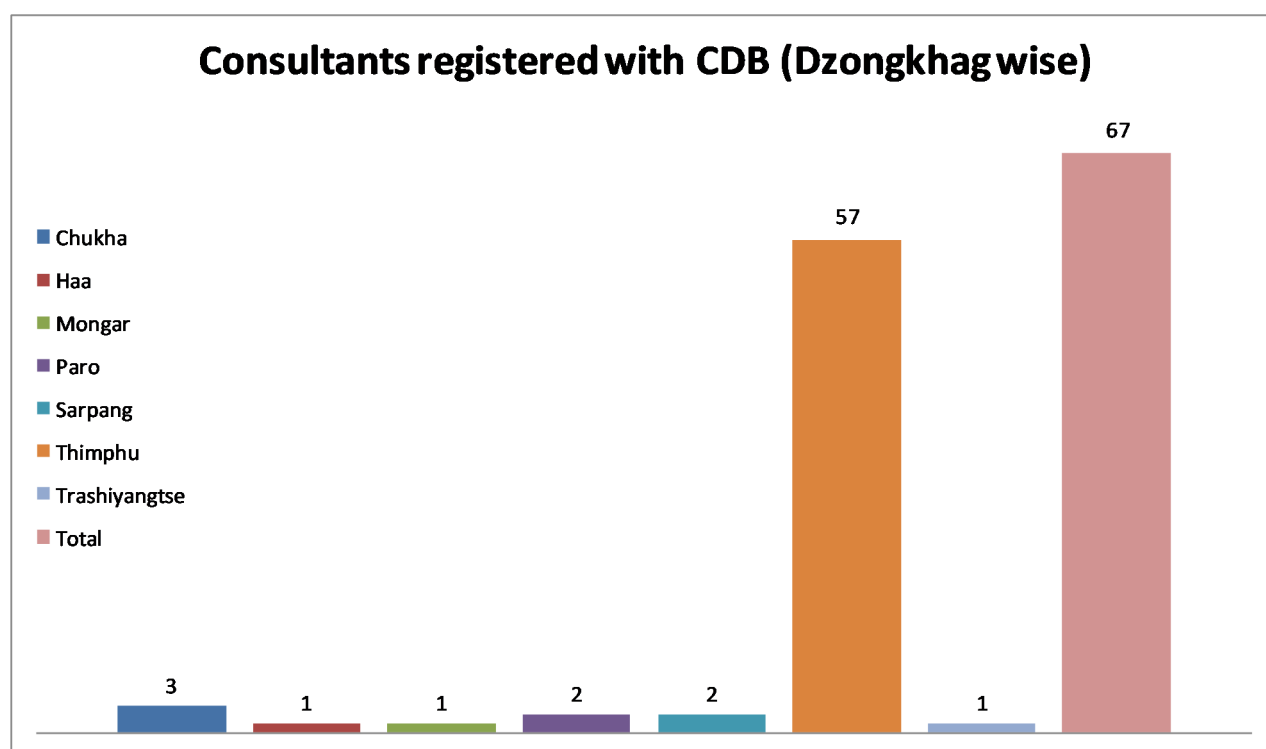


Consultants

The Consultants registered with CDB are classified in 3 categories (i) [Civil Engineering Services](#), (ii) [Electrical Engineering Services](#) & (iii) [Architectural Services](#) and the three classification are further sub-divided into the following categories.

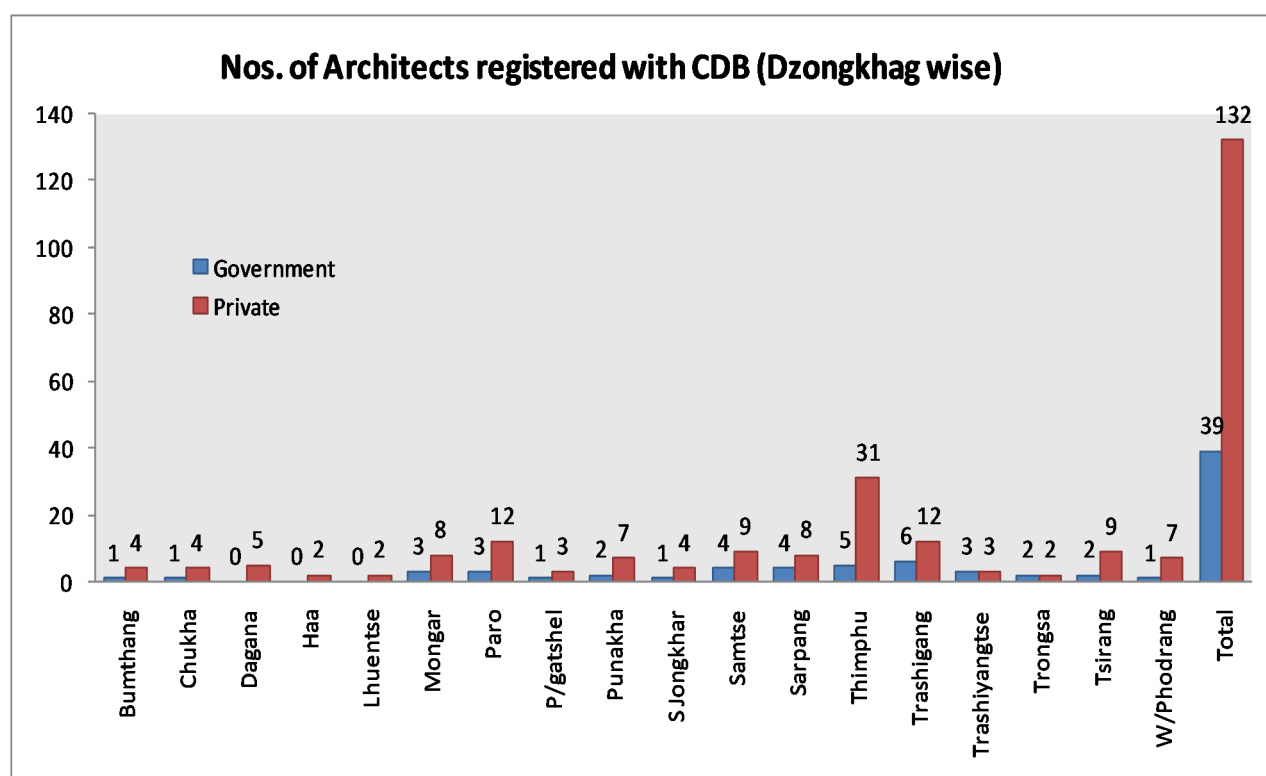
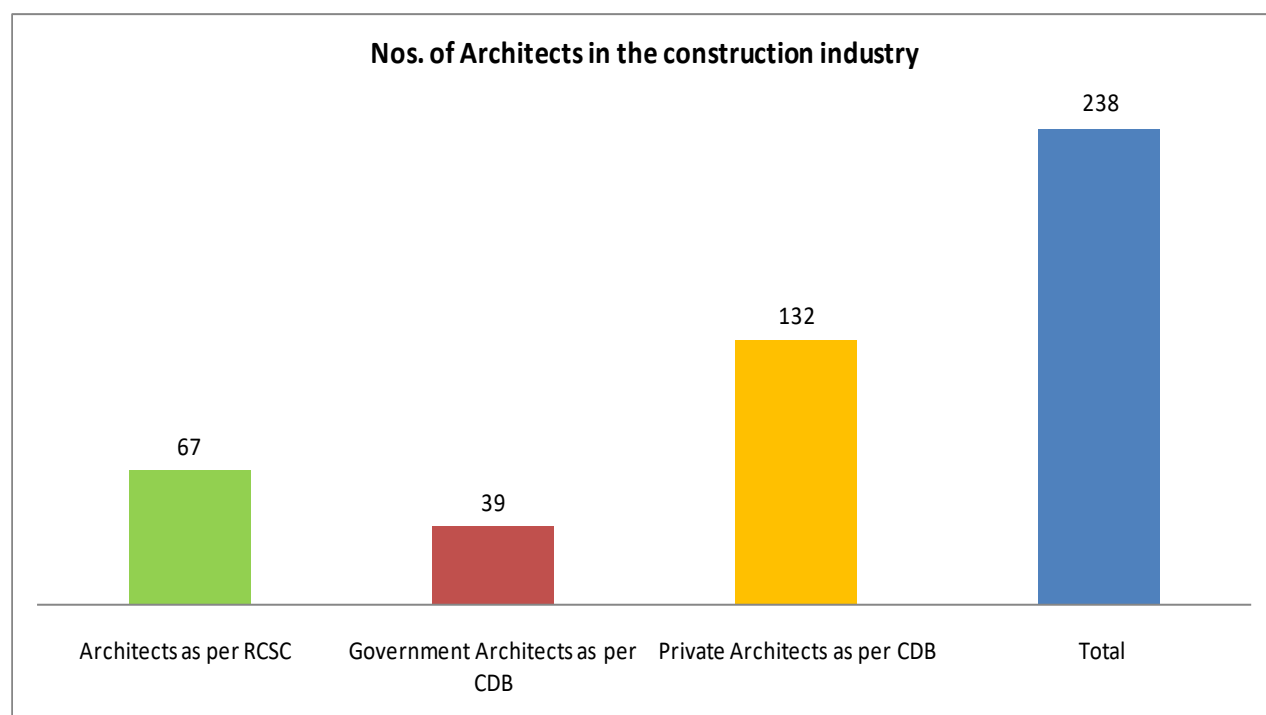
Categories of Consulting Firms:

CIVIL ENGINEERING SERVICES		ELECTRICAL ENGINEERING SERVICES		ARCHITECTURAL SERVICES	
C1	Structural Design	E1	Investigation & Design of Hydro Power Projects	A1	Architectural and Interior Design
C2	Geo-Tech Studies	E2	Operation & Maintenance of Hydro Power Projects	A2	Urban Planning
C3	Social & Environment Studies	E3	Urban & Rural Electrification, Transmission Line, Communication & Scada	A3	Landscaping and Site Development
C4	Roads, Bridges, Buildings & Air Ports	E4	Construction Management & Site Supervision		
C5	Irrigation, Hydraulics, Water Supply, Sanitation, Sewerage & Solid Waste	E5	Sub-station		
C6	Construction Management, Site Supervision & Surveying	E6	Energy Efficiency Services		
C7	Water Resources & Hydro Power Projects	E7	House Wiring		



Architects

To encourage professionalism and to protect the interests of the Client, the CDB register all architects (Bhutanese and non-Bhutanese) who wish to provide professional services in Bhutan.



Promotion & Professionalism in Construction Industry

Induction and Refresher Training for Contractors

The Program and Professionalism Section under CDB in pursuit of promoting a robust and vibrant construction industry conducted 19 batches of **Mandatory Training** and 6 batches of **Induction Course** for new aspiring contractors. Besides, enhancing the professional capacity of contractors, the training also notably facilitate in boosting development and promotion of an efficient, effective, quality based construction industry contributing to healthy and competitive growth. The training is a three day program for **Large and Medium class contractors** and two day program for **Small class contractors** conducted at the College of Science and Technology, Phuentsholing.

The integrated training program is uniquely designed to impart basic knowledge and skills in various construction fields such as project management aspects like Risk Management, Estimation and Quality Control. Beside the participants were also inducted on CDB norms during Mandatory training.

Nos. of participants attended Induction Course:

Sl. No.	Type of Training	Date/Month/Year	Target Participants	Nos of Participants		Venue
				Male	Female	
1	Induction Course	29 Jan to 30 Jan 2018	New contractors	42	13	CST, Phuentsholing
2	Induction Course	31 Jan to 01 Feb 2018	New contractors	33	10	CST, Phuentsholing
3	Induction Course	08 Apr to 09 Apr 2018	New contractors	47	4	CST, Phuentsholing
4	Induction Course	11 Apr to 12 Apr 2018	New contractors	42	16	CST, Phuentsholing
5	Induction Course	13 Apr to 14 Apr 2018	New contractors	43	11	CST, Phuentsholing
6	Induction Course	16 Apr to 17Apr 2018	New contractors	46	11	CST, Phuentsholing
			TOTAL	253	65	

Nos. of participants (Large & Medium Class) attended Mandatory Training:

Sl. No.	Type of Training	Date/Month/Year	Target Participants	Nos of Participants		Venue
				Male	Female	
1	Mandatory Training	11 Sep to 13 Sep 2017	Large & Medium Class	30	15	CST, Phuentsholing
2	Mandatory Training	02 Nov to 04 Nov 2017	Large & Medium Class	57	20	CST, Phuentsholing
3	Mandatory Training	05 Mar to 07 Mar 2018	Large & Medium Class	34	18	CST, Phuentsholing
4	Mandatory Training	08 Mar to 10 Mar 2018	Large & Medium Class	41	08	CST, Phuentsholing
5	Mandatory Training	21 May to 23 May 2018	Large & Medium Class	16	06	CST, Phuentsholing
			TOTAL	178	67	

Nos. of participants (Small Class) attended Mandatory Training:

Sl. No.	Type of Training	Date/Month/Year	Target Participants	Nos of Partici-		Venue
				Male	Female	
1	Mandatory Training	14 Sep to 15 Sep	Small Class	45	10	CST, Phuentsholing
2	Mandatory Training	16 Sep to 17 Sep	Small Class	34	16	CST, Phuentsholing
3	Mandatory Training	18 Sep to 19 Sep	Small Class	39	11	CST, Phuentsholing
4	Mandatory Training	06 Nov to 07 Nov	Small Class	47	09	CST, Phuentsholing
5	Mandatory Training	08 Nov to 09 Nov	Small Class	42	12	CST, Phuentsholing
6	Mandatory Training	27 Nov to 28 Nov	Small Class	63	11	CST, Phuentsholing
7	Mandatory Training	29 Nov to 30 Nov	Small Class	57	11	CST, Phuentsholing
8	Mandatory Training	11 Mar to 12 Mar	Small Class	47	24	CST, Phuentsholing
9	Mandatory Training	13 Mar to 14 Mar	Small Class	60	10	CST, Phuentsholing
10	Mandatory Training	15 Mar to 16 Mar	Small Class	53	17	CST, Phuentsholing
11	Mandatory Training	17 Mar to 18	Small Class	60	15	CST, Phuentsholing
12	Mandatory Training	24 May to 25 May	Small Class	53	06	CST, Phuentsholing
13	Mandatory Training	26 May to 27 May	Small Class	48	07	CST, Phuentsholing
14	Mandatory Training	28 May to 29 May	Small Class	43	17	CST, Phuentsholing
			TOTAL	585	148	

e-Tool and CiNET Training

As mandated by the CDB Manual 2007 “**To ensure fair and equal access to the award of contract**” with development of Online Construction Industry Information (CiNET) in 2009 and online evaluation tool (e-tool) in 2011.

The use of the **e-Tool** has significantly helped the procuring agency by cutting down the evaluation time and easy access to contract information. The role of e-Tool focal person has been of paramount importance during evaluation as they involve in making clarifications and inputting correct details and explaining the details to the Tender Committee. Also, they are entrusted with feeding in the details of performing and non-performing contractors which directly impact the bidder's eligibility in the future tenders. Considering the critical role played by e-Tool focal person in the respective agency for procurement of civil works and carrying out a fair and uniform evaluation process, the secretariat has planned to conduct training on e-Tool and CiNET annually for the procuring agencies. The ICT Services conducted 4 batches of e-Tool and CiNET training for the procuring agencies focal person.

Nos. of participants attended e-Tool & CiNET Training:

Sl. No	Type of Training	Date/Month/Year	Target Participants	Nos. of Participants	Venue
1	etool & cinet	9 Oct to 14 Oct 2017	e-tool Focal persons (3 batches)	88	CST, Phuentsholing
2	etool & cinet	18 Oct to 19 Oct 2017	e-tool Focal persons (1 batch)	23	JNEC, Dewathang
3	etool & cinet	26 Mar to 29 Mar 2018	e-tool Focal persons (2 batches)	45	CST, Phuentsholing
4	etool & cinet	3 Apr to 4 Apr 2018	e-tool Focal persons (1 batch)	18	JNEC, Dewathang
			TOTAL	174	

Nos. of participants attended e-Tool & CiNET Training:

Sl.No.	Date	Training	Venue	Procuring Agency	Participant
2017-2018					
1	9-14 Oct 2017	etool & cinet	CST	e-tool Focal persons (3 batch)	88
2	18-19 Oct 2017	etool & cinet	JNEC	e-tool Focal persons (1 batch)	23
3	26-29 Mar 2018	etool & cinet	CST	e-tool Focal persons (2 batch)	45
4	3-4 Apr 2018	etool & cinet	JNEC	e-tool Focal persons (1 batch)	18
5	15 June 2018	e-tool	BPC (HQ)	BPC officials	10
Sub Total					184
2016-2017					
1	22-May-17	etool	BAIL	BAIL	4
2	14-Apr-17	CiNET	BPC Begana	BPC	20
3	20 - 25 March 2017	etool & cinet	CST	e-tool Focal persons (3 batch)	59
4	28 - 29 March 2017	etool & cinet	JNEC	e-tool Focal persons (1 batch)	23
5	2-3 July 2016	etool & cinet	JNEC	SJ Thromde	11
6	29 Sept -7 Oct 2016	etool & cinet	CST	4 batches	111
7	24 - 27 Oct 2016	etool & cinet	JNEC	2 batches	43
Sub Total					271
2015-2016					
1	25-26 Feb 2016	etool	CST, Pling	Trongsa Dzo	17
2	31-1 March 2016	etool	JNEC, Dewathang	SJ Dzongkhag	12
3	01-Jul-15	etool	Lhuntse	Lhuntse Dzo Administration	31
4	03-Aug-15	etool	Thimphu Thromde	Thimphu Thromde	30
5	27-Jul-15	etool	Chhukha	Chhukha Dzo. Adm	30
6	5-10 Oct 15	etool & CiNet	CST, Pling	e-tool Focal persons (3 batch)	75
7	14-15 Oct 2015	etool & CiNet	JNP Dewathang	e-tool Focal persons (1 Batch)	28
8	21-22 Dec 2015	CiNET	CST, Pling	CiNET (2 Batch)	29
9	27-28 June 2016	etool & CiNet	JNEC, Dewathang	eFP Batch 1	24
10	30 June - 1 July 2016	etool & CiNet	JNEC, Dewathang	eFP Batch 2	25
Sub Total					301
2014-2015					
1	2014	etool		All DoR	190
2	07-04-14	CiNET		BPC	8
3	08-07-14	CiNET		MHPA	16
Sub Total					214
2013-2014					
1	20-11-2013	etool		DoI, MoEA	7
2	23-05-2013	CiNET		Hydro Plant	8
3		etool		Thimphu Thromde	25
Sub Total					40
	Till March 2013	E-tool		All procuring agencies	325
Total number of officials trained (Grand Total)					1335

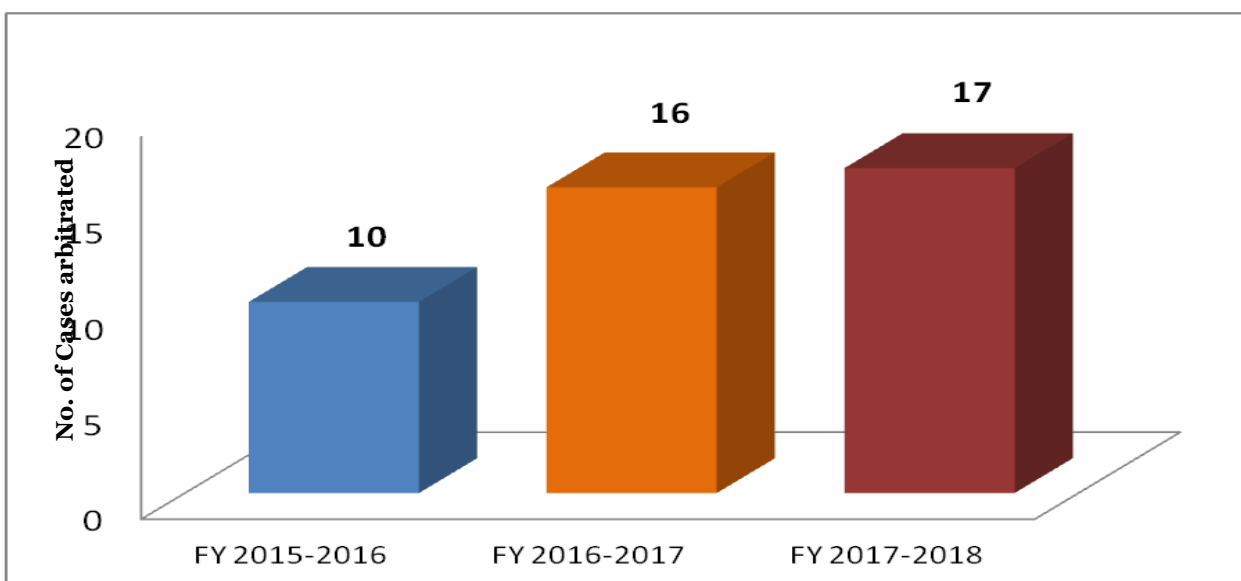
e-Tool User Registered as of Today : 395
CiNET User Registered as of Today: 85
Both e-Tool & CiNET Registered as of Today: 8

Arbitration

Cases in Arbitration

The administrative tasks of the Arbitral Tribunal and all clerical matters arising out of the conduct of arbitration are carried out by the Construction Arbitration Facilitation Centre (CAFC) under CDB. All costs of the arbitration is borne by the parties in accordance with CAFC Arbitration Rules of Procedure 2016. Parties to arbitration, arbitrators and the centre is bound by CAFC Arbitration RoP 2016, Code of Ethics & Terms of Reference for Arbitrators & Terms of Reference of CAFC.

No. of construction disputes resolved through arbitration for last 3 years:



Financial Year

SL No.	Financial Year	No of cases facilitated	Dispute amt. (in Nu.)	Subject matter of dispute
1	2015-2016	10	578.4 M	Time Extension, Termination of contract, Liquidated Damages (LD), Audit memos/observations, Price adjustment, Variation, additional works, Force Majeure & Interest payment
2	2016-2017	16	357.1 M	Time Extension, deviations, additional works, deduction, interest payment, LD,, RAA issues, Termination of contract & discrepancy in interpretation of SBD
3	2017-2018	17	281.5 M	Deviation, additional works, deduction, LD, interest payment, Termination, Price adjustment & time extension

Total amount in dispute 1.2 Billion

Observations/Findings

Few specific observations amongst others are as follows:

1. Lack of Proper planning & monitoring by Procuring Agencies;
2. Lack of proper planning by contractors for execution of project;
3. Budget tied to the Financial year;
4. Ignorant of arbitration procedures by parties to the arbitration;
5. Absence of enabling legislation (Arbitration Rules);
6. Ineffective Arbitrators:
 - 10 Arbitrators has not accepted single case;
 - 12 Arbitrators accepted more than 3 cases; and
 - 7 Arbitrators accepted 1 or 2 cases.
7. Practical challenges in implementing ADR Act 2013.

Sometimes, the concerned institutions failed to comply with the award, even after the award has become the decree of court. The compensation, penalty and damages levied and entitled are not paid or compensated on time. Most importantly, procuring agencies often failed to enforce arbitral awards while contractors has promptly enforced and recovered money from Government.



>>> during arbitration hearing of one of the cases

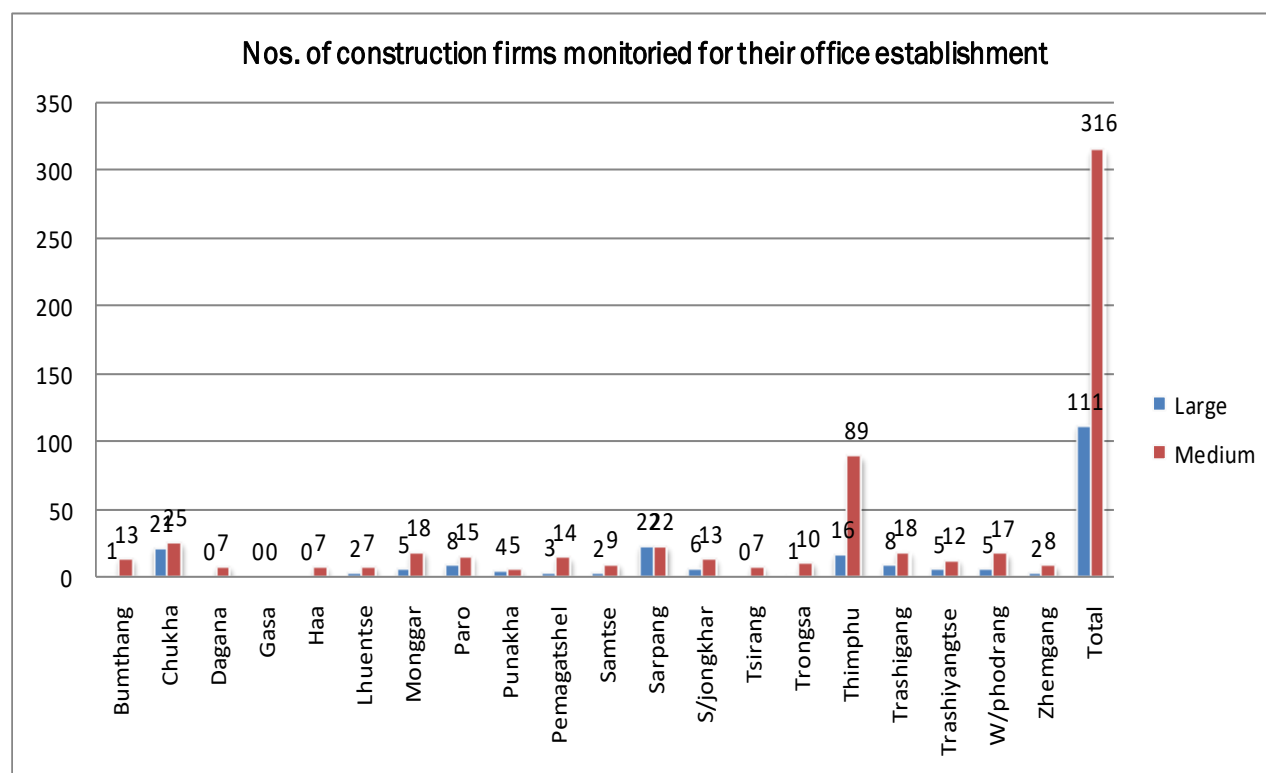
As an overseer of the construction industry, CDB is mandated to regulate the construction industry through compliance monitoring.

Office Establishment Monitoring of the Contractors

Office establishment monitoring comprises of monitoring of Contractor's office set-up, human resources and registration requirement. All Large and Medium class contractors are obligatory to maintain office setup in their registered Dzongkhag and employ the human resources as committed during registration/renewal. Administrative actions including downgrading to lower class/category and suspension are taken upon non-compliance.

Number of firms monitored:

	Large class	Medium class
No. of contractors	111	316
Total	427	



Administrative actions taken:

	Downgraded to lower category	Suspended
No. of contractors	15	9
Total action taken	24	

List of contractors downgraded for non-compliance to registration requirement (for FY 2017-18):

Sl. No.	Name of the Firm	CDB No.	Class	Dzongkhag	Downgrade to (category)	With effect from
1	Tenzin Const.	1318	M	Thimphu	Small class in W ₁ & W ₃	29/03/2018
2	Lhaba T Const.	3893	M	Thimphu	Small class in W ₁ & W ₃	29/03/2018
3	KJ Builders	3994	M	Thimphu	Small class in W ₁ , W ₃ & W ₄	29/03/2018
4	MekhamDorji Const.	2031	M	Thimphu	Small class in W ₁ & W ₃	29/03/2018
5	Re Chhean Const.	5560	M	Chukha	Small class in W ₁ & W ₃	29/03/2018
6	De-Kiling Builders	2283	L	Chukha	Medium class in W ₁ & W ₃	29/03/2018
7	Wangchuk Norphel Const.	1024	M	Chukha	Small class in W ₁ & W ₃	29/03/2018
8	Kuenzang Lhamo Const.	2999	M	Chukha	Small class in W ₁ & W ₃	29/03/2018
9	Jamtsho Const.	2467	M	Chukha	Small class in W ₁ & W ₃	29/03/2018
10	RJ Const.	2841	M	Sarpang	Small class in W ₁ & W ₃	29/03/2018
11	Phuntsho Const.	1837	M	Samtse	Small class in W ₁ & W ₃	29/03/2018
12	Chethuen Const.	1757	L	Mongar	Medium in W ₃	14/05/2018
13	US Builders	5317	M	Trongsa	Small class in W ₄	18/04/2018
14	Sunlight Const.	1042	M	Punakha	Small in W ₁ , W ₃ & W ₄	11/05/2018
15	Yoebar T Const.	7889	M	Punakha	Small class in W ₁ , W ₂ & W ₃	04/06/2018

NOTE :

- Downgraded Firms are allowed to participate in the bid in downgraded category.
- Firm is allowed to upgrade the downgraded category only after completion of down-gradation period (6 months) and upon fulfillment of requirements.

List of Contractors suspended for non-compliance to registration requirement (for FY 2017-18):

Sl No	Name of the Firm	CDB No.	Class	Dzongkhag	With effect from
1	Apex Const.	3241	M	Thimphu	29/03/2018
2	Passang Const.	2689	M	Thimphu	29/03/2018
3	Loeb const.	3903	M	Thimphu	29/03/2018
4	Lhatu Const.	5259	M	Thimphu	29/03/2018
5	Zhendup Const.	3660	M	Sarpang	29/03/2018
6	Rubthuen Const.	1915	M	T/Gang	03/05/2018
7	Ngala Retshel const.	3839	M	Wangdue	11/05/2018
8	Dorji Const.	1367	M	B/Thang	21/05/2018
9	Thubten Const.	3116	M	B/Thang	21/05/2018

NOTE :

- The suspended Firm shall not be allowed to avail any services during suspension period.
- The suspended Firm shall remain suspended until re-instated by CDB.
- Upon completion of suspension period (3 months), Firm may apply for lifting of suspension upon fulfillment of requirements.

Observation from Establishment Monitoring

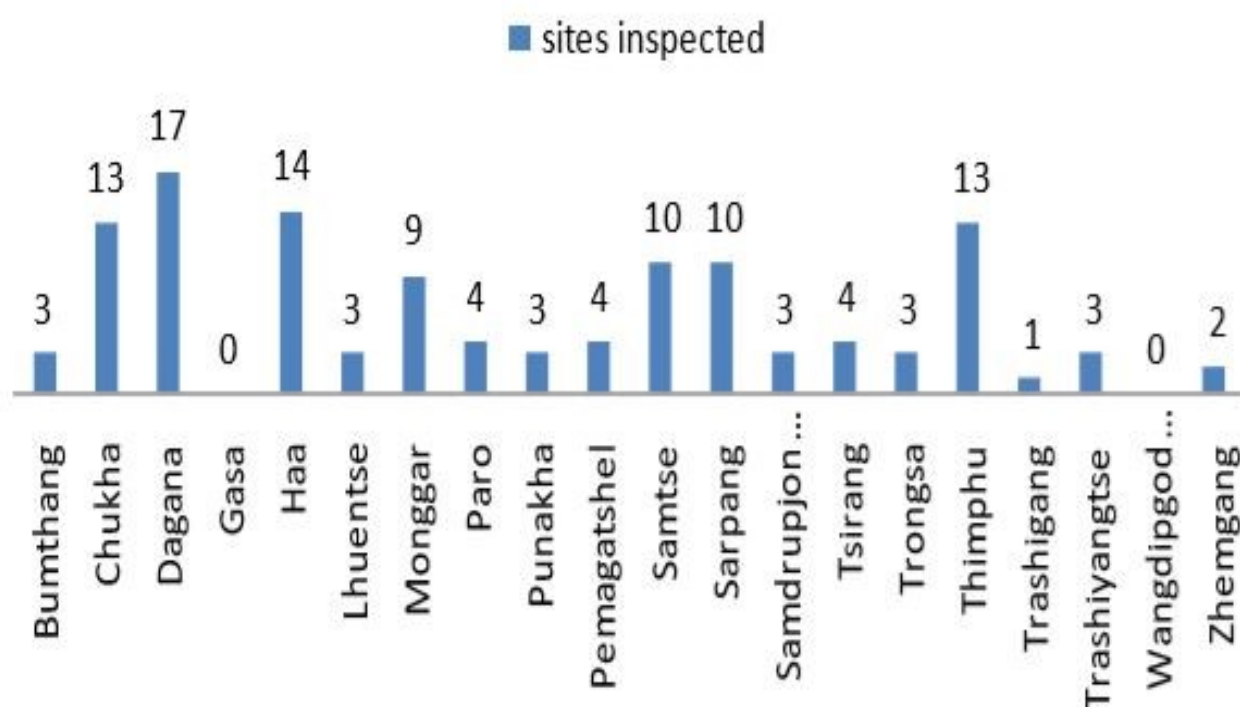
1. Contractors do not maintain standard salary sheets of their employee. Some firms pay salaries based on attendance register or deposit directly to staff's bank account.
2. Firms change their office location without updating in the CDB data base.
3. Mismatch of HR committed during the registration and HR employed by the firms (Not updated in the system).

Ongoing Site Monitoring

The monitoring team of CDB randomly monitor/inspect ongoing construction sites on fulfillment of the Human Resource (HR) and equipment requirements as committed in the Standard Bidding Document (SBD). During the time of bidding, the contractors commit HR and equipment set in the bidding data sheet to qualify and to win the tender. Upon winning the contract, the contractor is obliged to deploy the committed resources to the work site. Contractor also have the responsibility to have good construction management practices at the site. The monitoring team checks the compliance of both contractor and the procuring agencies to the contract documents.

The Monitoring team monitored 119 numbers of Construction site located in different parts of the country.

Number of sites inspected



Brief finding of construction site monitoring:

No site office establishment	Absence of committed HR	Non-deployment of committed equipments	No Work Plan
52	37	45	29

Observations on construction site monitoring

1. Most of the construction sites do not have site office & sign board.
2. The APS form is filled only during the completion of the project by the Site Engineers where as the guideline clearly says it has to be filled three times.
3. No periodical update of works in the e-Tool. Some completed works are still reflecting in the on-going works and some recently awarded works are not included in the on-going works.
4. The resources committed during the bidding and resources present at the site are found to be different in most of the sites.
5. The committed intern and VTIs/Bhutanese Skilled Workers at the time of bidding are not deployed at most of the construction sites.
6. Procuring agencies at some construction sites has not imposed penalty for not deploying the key personnel and equipment as committed in the contract.
7. Some construction sites were found to be supervised solely by labour contractors.
8. Occupational Health and Safety requirement is not complied in most of the construction sites.

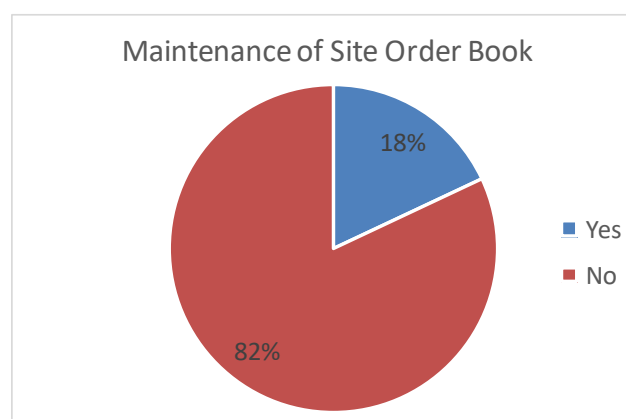
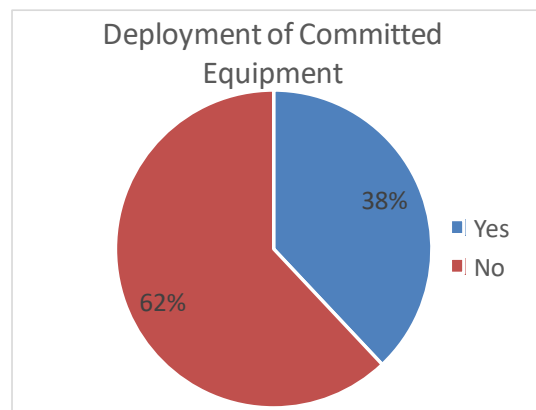
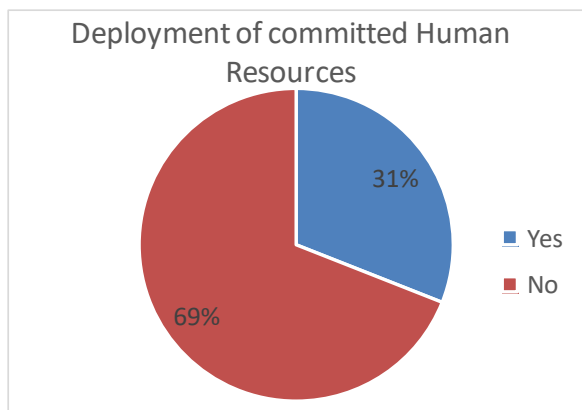
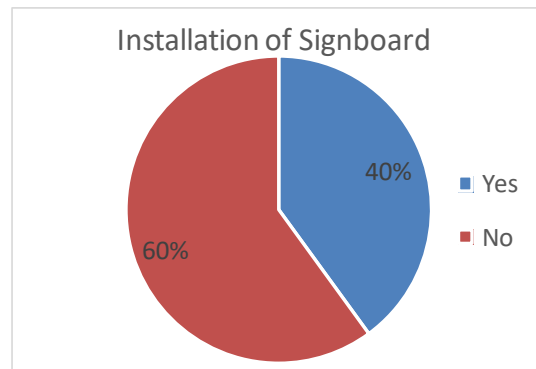
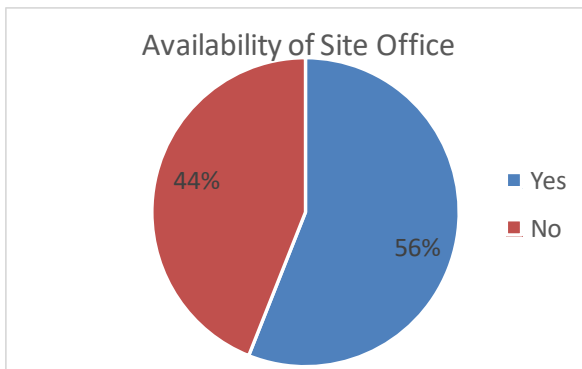


>>> CDB Official during the inspection of on-going construction site

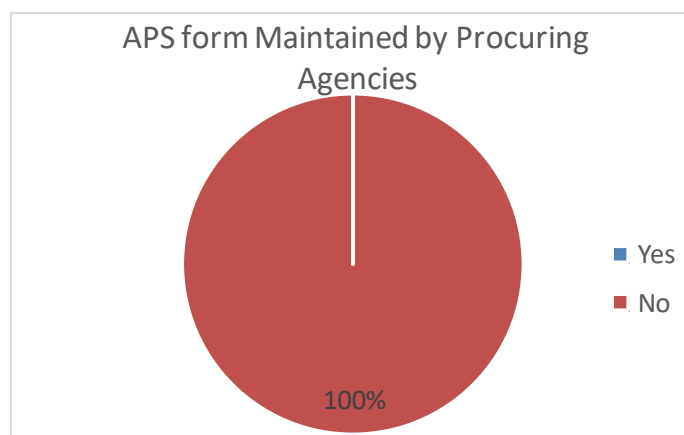
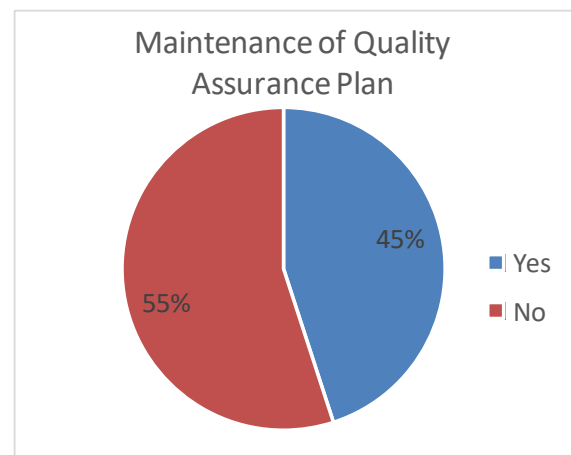
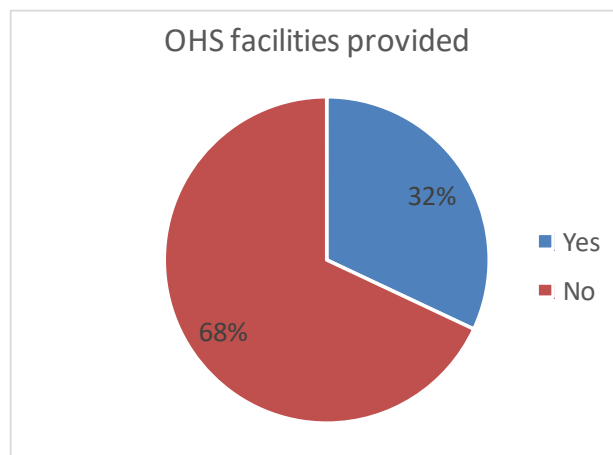
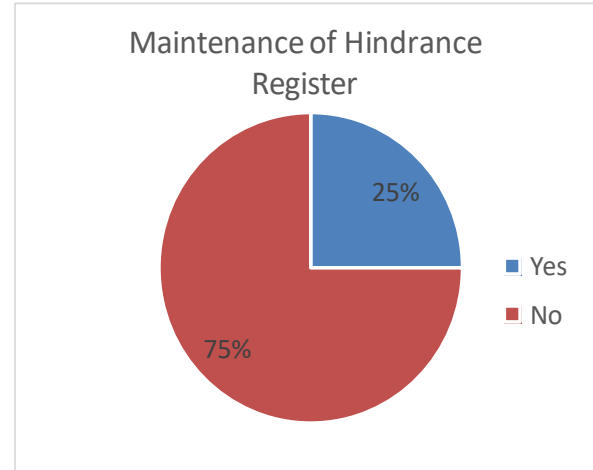
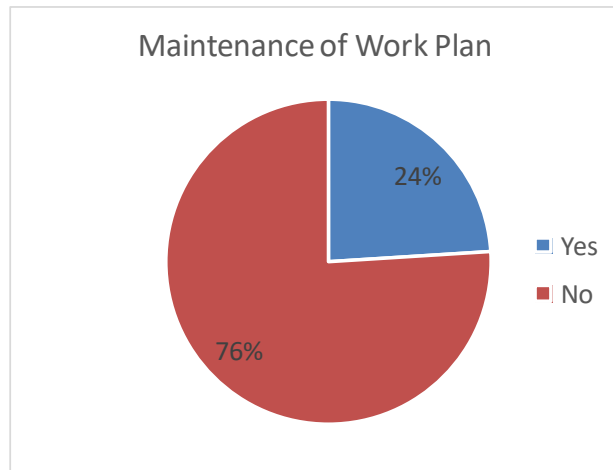


>>> CDB Official during the inspection of office establishment of firm

Observations from 119 construction sites monitored



Observations from 119 construction sites monitored



Discrepancy in Average Performance Score rating of the contractors after completion of work

The Average Performance Score (APS) rated by the Procuring Agency after completion of the work for the contractor is one of the main parameters calculated during the technical bid evaluation for any future bid they participate. The APS rated by the Procuring Agencies generally differentiate between the performing and non-performing contractors in term of 'timely completion of works' and 'quality of work' they have delivered.

Average Performance Score as per the CDB database rated by PA's on timely completion of works by the contractors:

Class	Works rated full score (30/30)	Works with time overrun but rated full score (30/30)	% of works wrongly rated
Large	13	4	31 %
Medium	87	21	24%
Small	312	87	28%
Total	412	112	27%

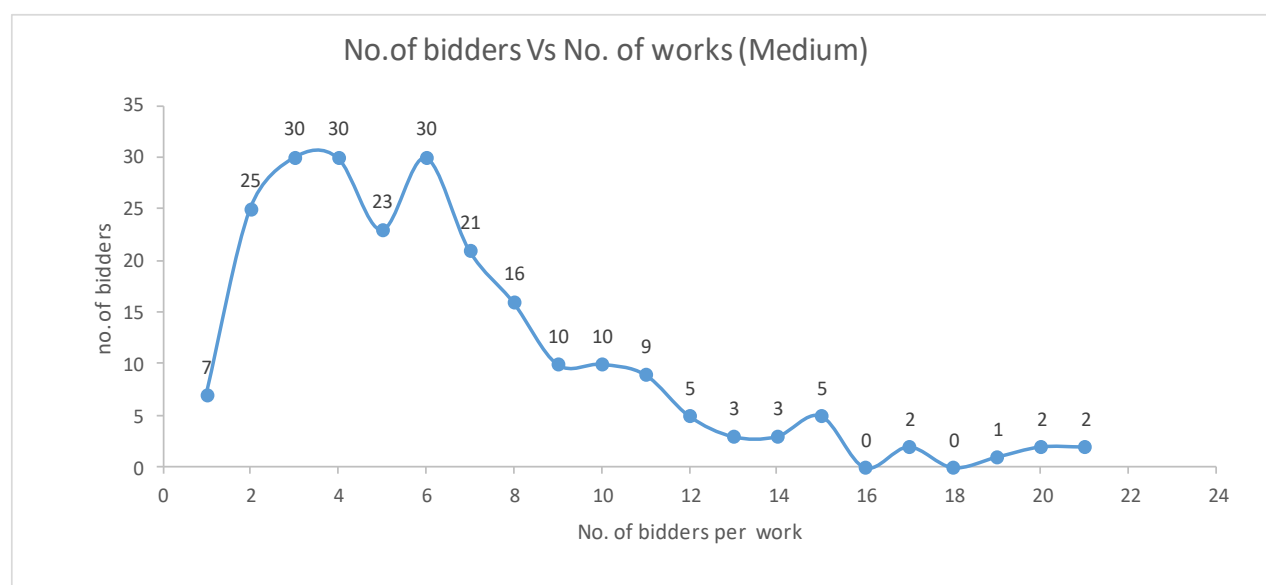
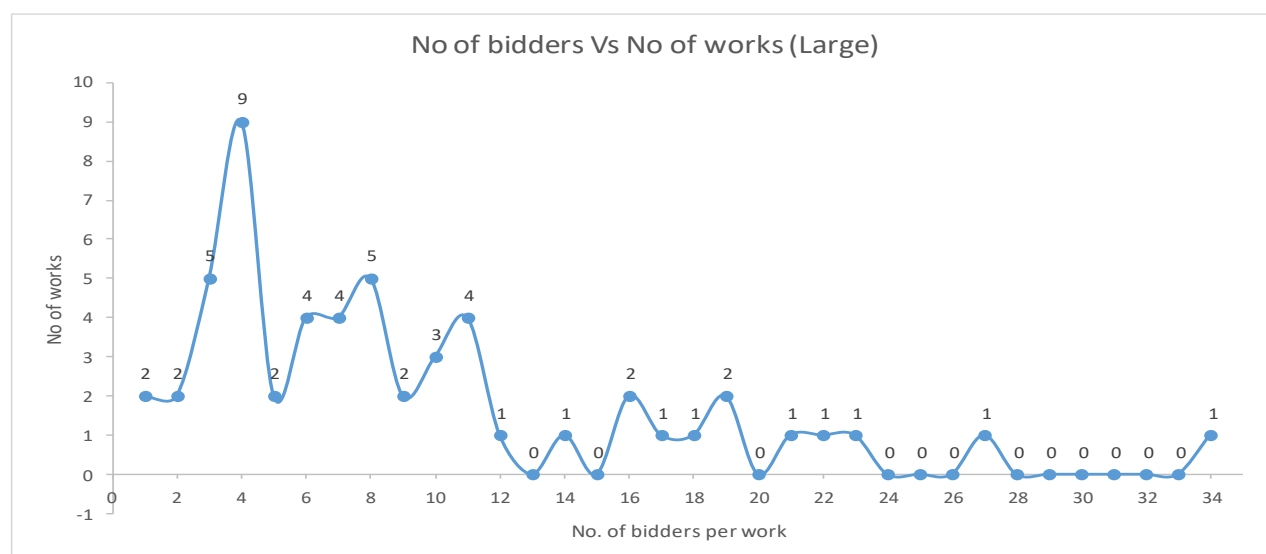
The above table indicates that 27% of works are rated wrongly for the works not completed on time. **Such non-compliance will miscalculate the bidder's technical capacity and their performance scores resulting into unfair bidding process and unethical practices.**

Bidders Participation

Following were the findings compiled from the Evaluation Report of works executed by Large and Medium Contractor's evaluated and awarded through e-Tool:

Nos. of Bidders participated FY 2017-18 :

Class	No. of works awarded through e-tool	No. of bidders participated	Average no. of bidders participated for each work	Max. bidders participated	Min. bidders participated
Large	55	509	9	34	1
Medium	234	1480	6	24	1



Qualification of Bidders during the technical evaluation stage (FY 2017-2018)

The evaluation system for Bidder selection is a two stage evaluation processes. In the 1st stage (Technical evaluation), a contractor needs to obtain a score of at least 65 points out of 100 in order to qualify for the 2nd stage (Financial/preference score evaluation). Only those qualified bidders are taken for the next stage of evaluation.

Respective procuring agencies designs the HR & Equipments requirement to suit their projects and are clearly reflected in the Bidding data sheet of their tender documents.

The table below shows that on an average 37% of the bidders gets disqualified during the 1st Stage of evaluation:

Class	No of works	No. of bidders participated	No of bidders qualified for 1st stage	No of bidders not qualifying 1 st
Large	55	509	370 (73%)	139 (27%)
Medium	234	1480	879 (59%)	583 (41%)

Source: CDB database. The application of point based system is only for works executed by Large & Medium Class contractors.

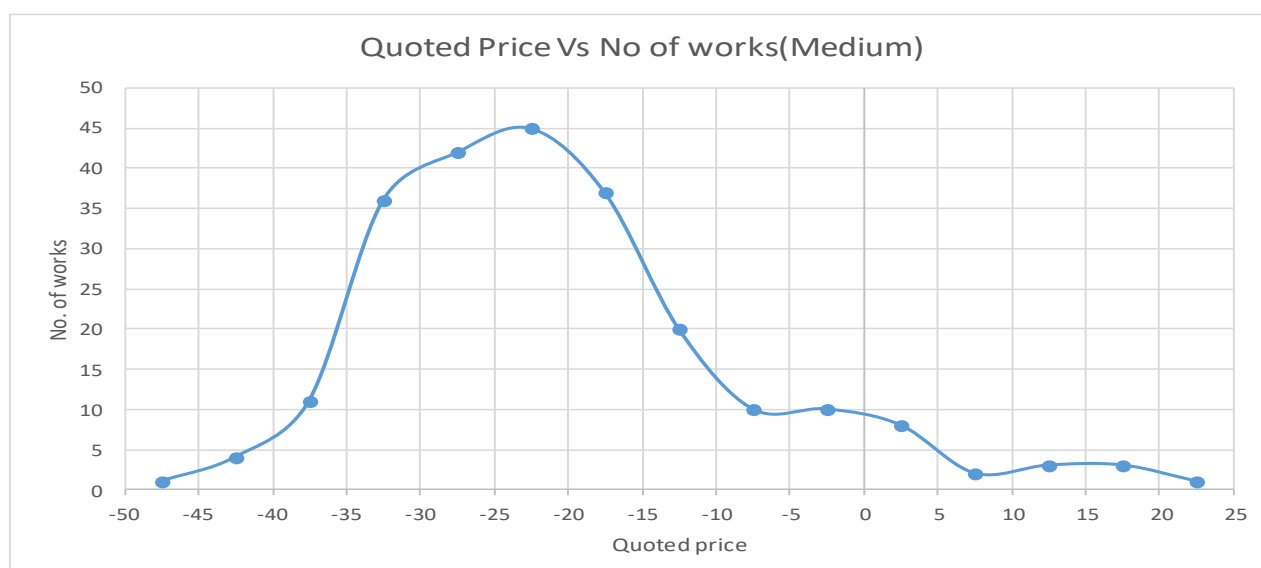
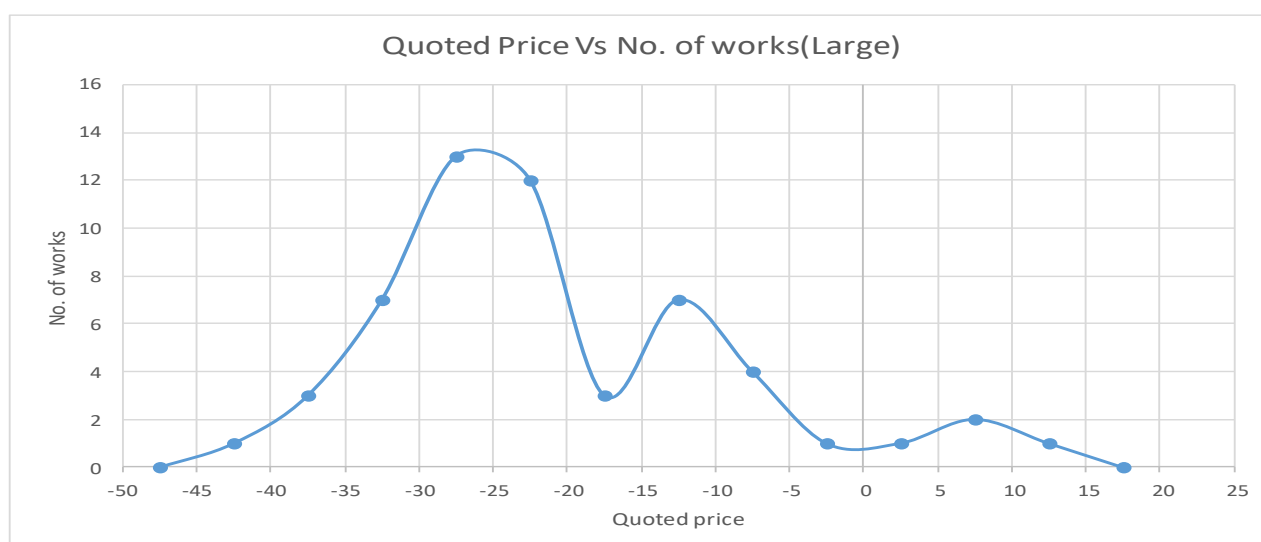
One of the advantages of the Point Base System is that the bidders are in position to determine whether they would qualify the 1st Stage of Evaluation since the required HR & Equipments along with the points allocated are clearly mentioned in the bid document.

Looking at the number of bidders disqualified during the first stage of evaluation, it indicates:

- Lack of professional knowledge to analyze the bid document before bidding by the bidders;
- The qualification criteria were set higher than required by the procuring agencies;
- Not updating work status on time with CDB; or
- Non-availability of required resources and technical capacity with the bidders.

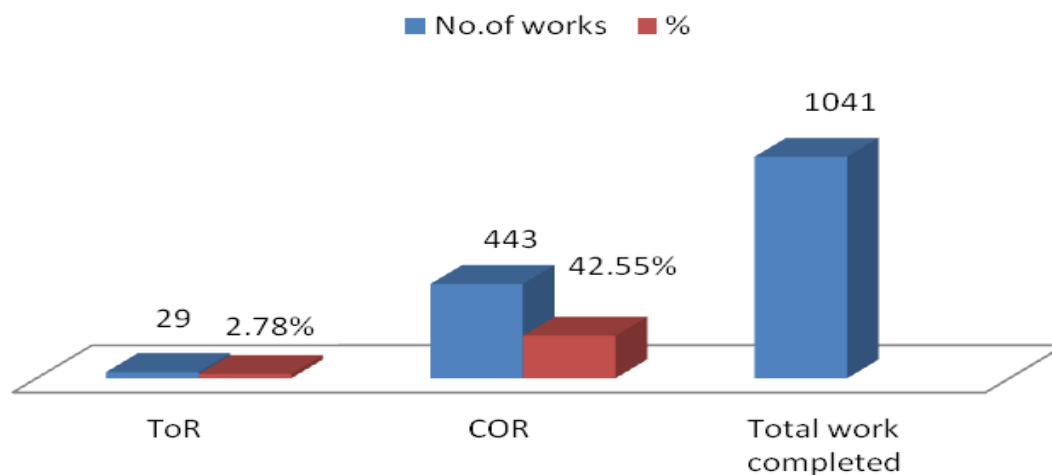
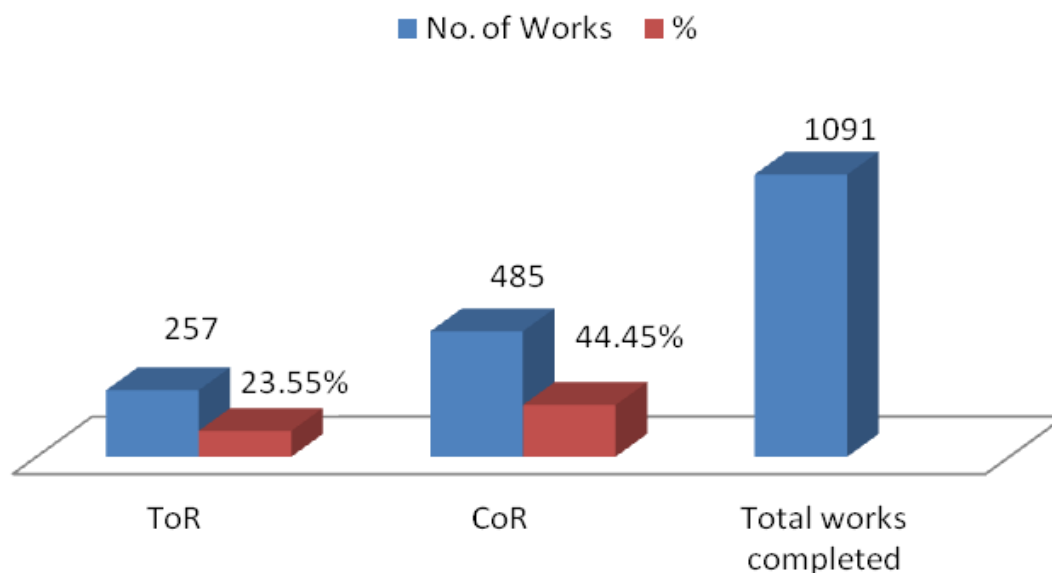
Works awarded below and above estimated cost

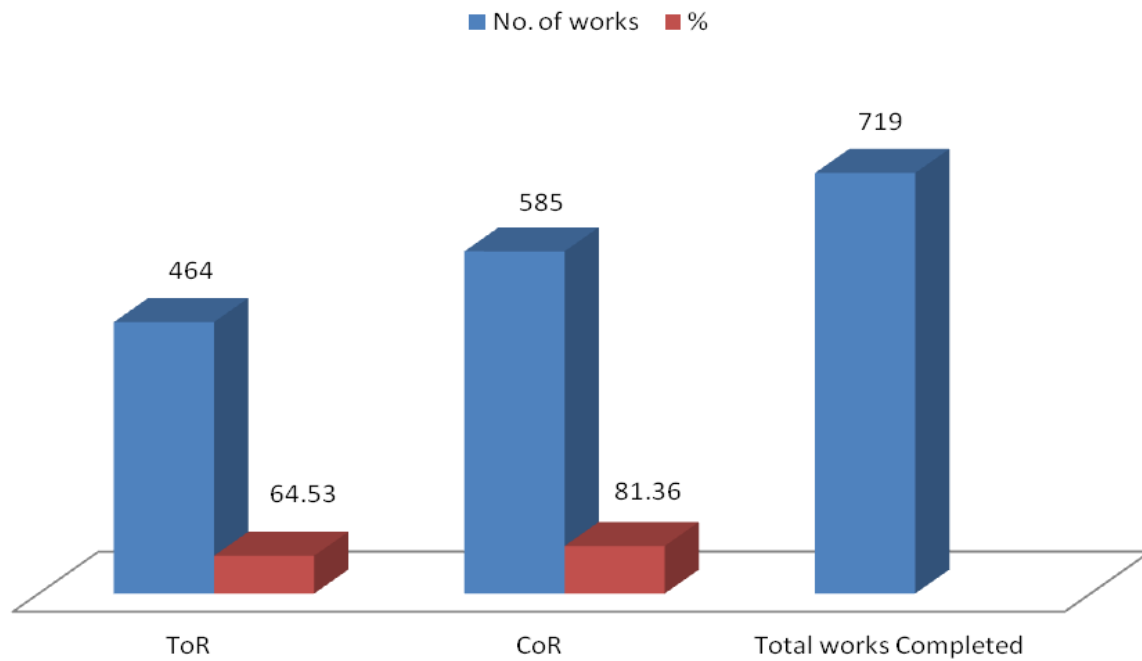
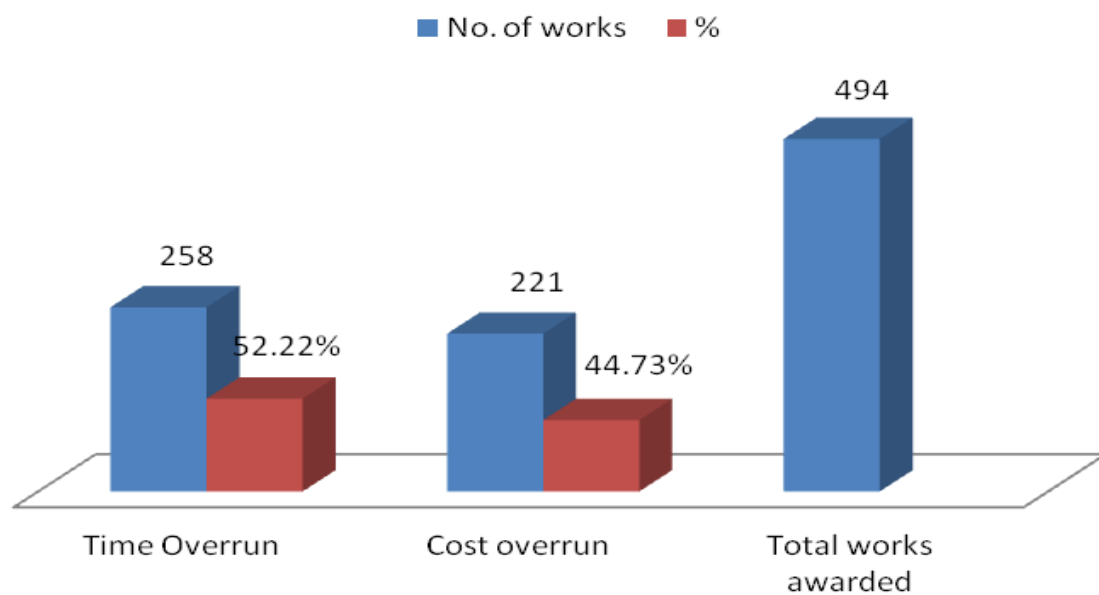
Class	No. of works	No. of bidders participated	No. of works awarded below estimate	No of works awarded above estimate	Max. quoted Price above estimate (%)	Min. quoted price below estimate (%)	Average quoted price below & above estimate (%)
Large	55	509	51	4	12.01	-44.54	-20.98
Medium	234	1480	217	17	21.54	-47.46	-20.76



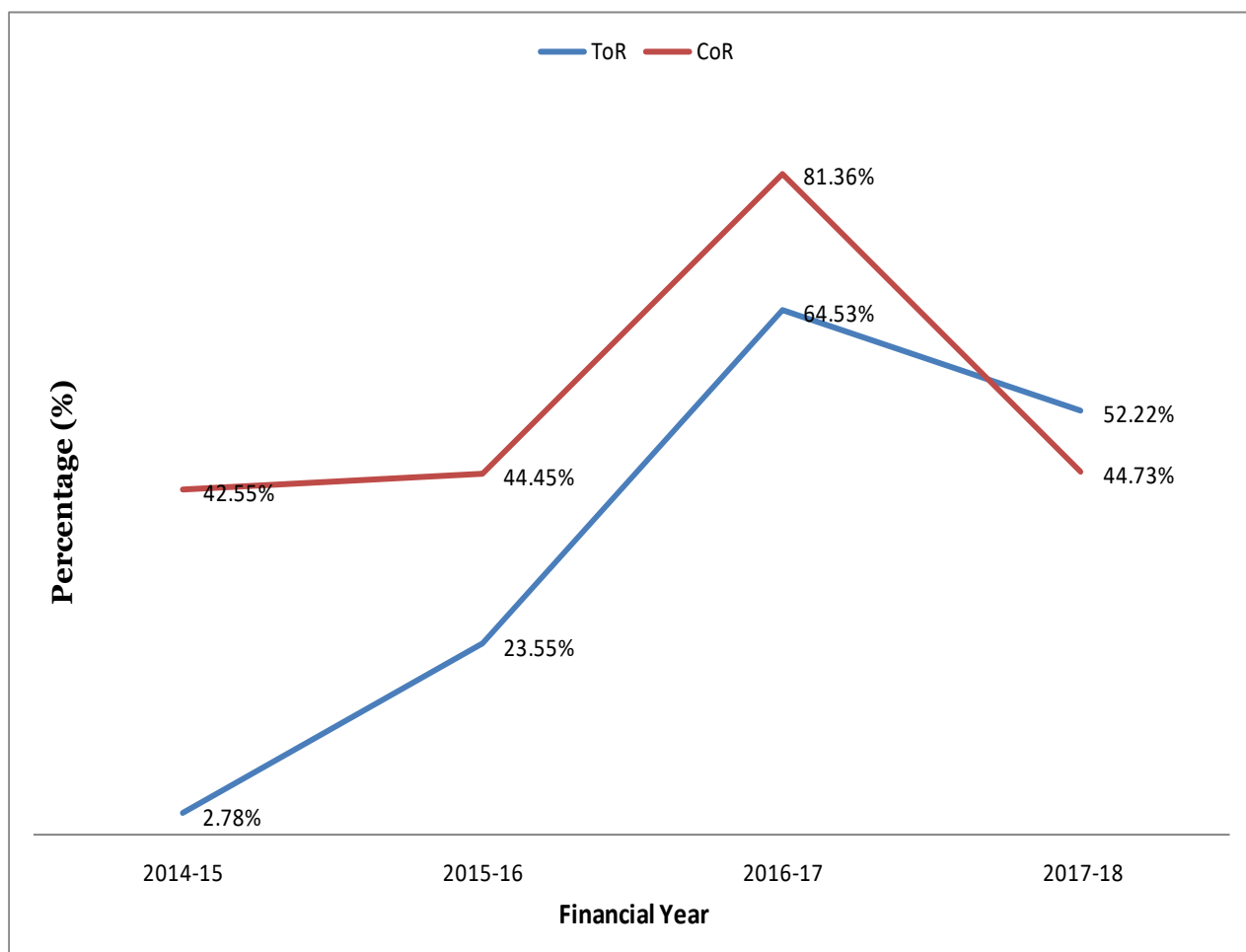
Time overrun (ToR) and Cost overrun (CoR) in past 4 years - Key Performance

One of the most significant issues faced by the construction industry is time over run. Time over run has the greatest impact to the construction which can never be recovered. In FY 2014-15, out 1041 completed projects, 29 works (2.78%) were delayed and 443 works (42.55%) were into Cost Over run. In FY 2015-16, out 1091 completed projects, 257 works (23.55%) were delayed and 485 works (44.45%) were into Cost Overrun. In FY 2016-17, out 719 completed projects, 464 works (64.53%) were delayed and 585 works (81.36%) were cost over run. In FY 2017-18, out 494 completed projects, 258 works (52.22%) were delayed and 221 works (44.73%) were cost over run.

ToR & CoR FY 2014-15**ToR & CoR FY 2015-16**

ToR & CoR FY 2016-17**ToR & CoR 2017-18**

Trend of Time & Cost overrun for last four (4) years



Promotion of Quality Construction through production of TV Spots

In pursuit of promoting quality in the construction industry, CDB has produced 3 TV Spots in the last 3 years with the theme “*Quality construction is important to benefit us today and future generations of tomorrow*”.

The TV spots can be accessed vide link provided below :

TV Spot 1: <https://youtu.be/a67hKi4ynsl> or www.cdb.gov.bt or facebook.com/CDBBHUTAN

TV Spot 2: <https://youtu.be/XCnEmrTU6Wg> or www.cdb.gov.bt or facebook.com/CDBBHUTAN

TV Spot 3: <https://youtu.be/iSh-tHhYf-c> or www.cdb.gov.bt or facebook.com/CDBBHUTAN

Participation of Bhutanese Contractors in Hydro Power Projects

The construction of Hydro Power Projects (HPPs) began in early 60's and over the years many powers were built and commissioned having greater impact on the country's GDP and lively hood. However, Bhutanese contractors could not take part in the construction of HPP and thus could not get or gain any experience in the such projects. In order for Bhutanese construction industry to sustain in future, it is timely for Bhutanese contractors to participate in the constructions of HPPs and take part in the regional and international projects in near future.

Considering the importance for Bhutanese contractors to venture into HPPs in Economic Development Plan 2016, CDB carried out study on the **financial capacity** of few large class contractors to meet the financial capacity of few projects (illustrated in the table below). However, for the experience and technical expertise:

- It is recommended for Bhutanese contractors to form a joint venture with the foreign company having work experience in HPPs to compensate on the lack of technical expertise and experience.
- This study also recommends for relaxation of qualification requirement of similar work experience by considering the work experience of Human Resources employed by the consortium formed by Bhutanese contractors.

Sl.No	Name of Contractors	Turnover for last 5 years (Nu. in million)	Turnover requirement to qualify for Hydro Power Project (Nu. in Million)		
			(Construction of Diversion Tunnel, Inlet & Outlet portals)	(Construction of Headrace Tunnel; including Construction Adits)	(Construction of Surge shaft, Pressure shafts)
1	M/s. Rigsar Construction Pvt Ltd (2435)	1553	2250	1300	1200
2	M/s. Rinson Construction Pvt Ltd (1965)	1156			
3	M/s. Penjor Construction Pvt Ltd (1958)	862			
4	M/s. Hi-Tect Construction Pvt Ltd(4840)	716			
5	M/s. Chimmi RD Construction Pvt Ltd (5455)	633			
	Total Annual Turnover for 5 contractors	984			
	Total Annual Turnover for 10 contractors	1968			

* Above mentioned contractors are picked based on their Financial capacity from CDB database as of September 2017

MECHANIZATION

Introduction

Since the early years of the twentieth century automation has grown and prevailed in almost all production domains other than construction of civil structures. Implementation of automation in the construction domain has been slow due to:

1. Unsuitability of the available automated fabrication technologies for large scale products.
2. Conventional design approaches that are not suitable for automation.
3. Significantly smaller ratio of production quantity/type of final products as compared with other industries.
4. Limitations in the materials that could be employed by an automated system.
5. Economic unattractiveness of expensive automated equipment.
6. Managerial issues.

On the other hand, the following are reported to be serious problems that the construction industry is facing today:

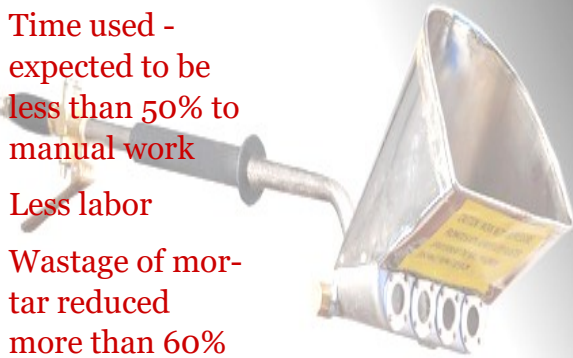
1. Labor efficiency is alarmingly low.
2. Accident rate at construction sites are high.
3. Work quality is low.
4. Control of the construction site is insufficient and difficult, and skilled workforce is vanishing.

Mechanized Hand-tools

Some of the mechanized hand-tools used during the construction of buildings are as follows:

- ***Plaster sprayer***
- ***Concrete Cutter***
- ***Rock breaker***
- ***Core drills***
- ***Compactor***

- Easy Uniform plastering with high quality
- Fast & effortless
- Time used - expected to be less than 50% to manual work
- Less labor
- Wastage of mortar reduced more than 60%



Plaster Sprayer

- Designed for breaking concrete, asphalt, frozen ground, brick wall etc
- Faster & Efficient
- Low Operating cost
- Can be used for 8 hours/day
- Lightweight and suitable under extreme working conditions



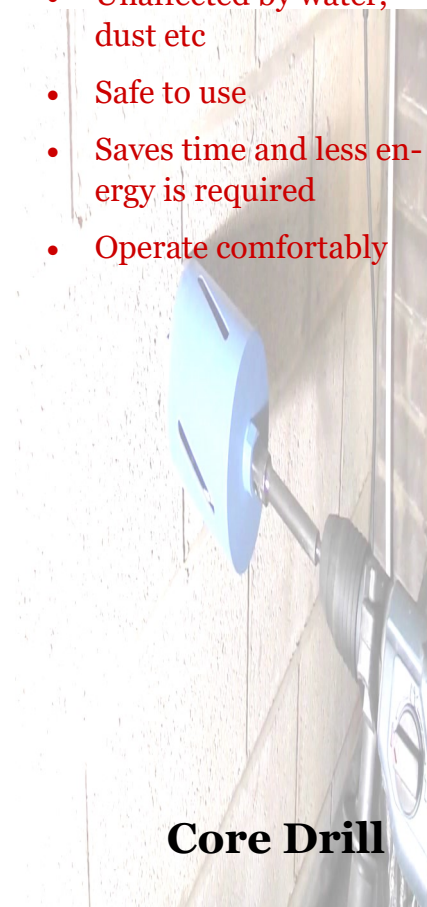
Rock Breaker

- Durable and powerful up to 18HP
- Safe to use with changeable blades
- Easy to operate
- Saves time, cost and energy



Concrete cutter

- Durable and low service costs
- Unaffected by water, dust etc
- Safe to use
- Saves time and less energy is required
- Operate comfortably



Core Drill

- Designed for slope-sided road construction, building foundation works, drainage compacting works etc.
- Improve the work quality
- Economically efficient
- Saves time and



Compactor



1 June 2017:

Mr. Phub Rinzin, the then Chief Engineer of Department of Engineering Services, Ministry of Works & Human Settlement (MoWHS) was appointed as new Director, CDB

15 July 2017:

CDB family cordially welcoming New Director Mr. Phub Rinzin



15 July 2017:

Glimpse of Handing-Taking between Director and Offtg. Director



7 September 2017:

Signed Annual Performance Target (APT) for 2017-2018 with Hon'ble Chairperson Zhabtog Lyonpo

**8—11 October 2017:**

The four-day Construction fair is organized by the Construction Association of Bhutan (CAB) and the Construction Development Board (CDB).

9 – 14 October 2017:

e-Tool and CiNET training at College of Science & Technology, Phuentsholing

**18 - 19 October 2017:**

e-Tool and CiNET training at Jigme Namgyel Engineering College, Dewathang



22 – 29 November 2017:

Training on “Contract Administration” at National Institute of Labor Economics Research & Development (NILERD), New Delhi, India funded by Government of India-PTA

13 December 2017:

Awardees of ‘Civil Service Award’, Mr. Khandu Tshewang (20years), Mrs. Dechen Choden (20 years) & Mr. Arjun Subba (10 years) for their dedicated service to TSA WA SUM in the Civil Service.



3 - 10 January 2018 :

Training on “Construction Quality Control and Monitoring” at NILERD, New Delhi, India



Training programme on
"International Procurement and Best Practices"

18 - 25 January 2018:

Training on "International Procurement Best Practices" at NILERD, New Delhi, India

1 February 2018:

Signing of Memorandum of Understanding between Dr. P.R. Swarup DG, Construction Industry Development Council (CIDC) of India and Mr. Phub Rinzin, Director in presence of Hon'ble Chairperson, CDB



5 - 7 February 2018:

Mr. Chencho Tshering, Sr ICT Technical Associate II of Construction Development Board, won the 2nd SAARC Procurement Innovation Award 2017 at the 5th South Asia Regional Procurement Conference held in New Delhi, India. His paper on "Implementation of web based online evaluation tool (e-tool) for procurement of works for Royal Government of Bhutan" won the award out of eight submissions from Bhutan.



15 - 16 March 2018:

Refresher Course on Arbitration of Construction Disputes conducted by CDB

26 March 2018:

CDB Signed Memorandum of Understanding with Anti-Corruption Commission (ACC) on "strengthening & Promoting cooperation to prevent and combat corruption".



4 April 2018:

Hon'ble Chairperson Launched following documents during 68th Board Meeting:

1. Registration Guidelines 2018;
2. e-Zotin Terms & Conditions 2017;



4 April 2018:

68th Board meeting for providing policy directions to CDB Secretariat

8 - 11 May 2018:

CDB Director at 9th Works and Human Settlement Conference held in Mongar



15 May 2018:

CDB handing over the charges of Arbitration, Cases, Documents & Arbitrators to Bhutan Alternative Dispute Resolution Centre.

16 May 2018:

Mr. Chencho Tshering Sr. ICTA, was awarded the certificate of appreciation for winning the “Outstanding Employee’s Award” for the FY 2016 – 2017.

**17 - 18 May 2018:**

Training of CDB officials on “7 Habits of Leadership” at Institute for Management Studies Limited Campus, Serbithang, Thimphu

26 - 29 May 2018:

Hon'ble Chairperson at 2nd Bhutan Construction Fair



26 May 2018:

CDB Director with Mr. Matthew Tee Datuk (President, International Federation of Asian and Western Pacific Contractors' Associations), Mr. Ir Chuan Yeong Ming (Secretary-General), Mr. Thinlay Jamtsho (President, CAB), Mr. Tshering Yonten (Vice president, CAB) & other executive members of CAB during 2nd Fair

**4th June 2018:**

CDB delegation visited Siam Cement Group (SCG) Thailand & met with Director and other employees. SCG was founded on 8th December, 1913 which is the largest & oldest cement and building material company in Thailand and South East Asia.

5 June 2018:

Signing of MoU between Mr. Chakpon Oonjit, Executive Director of Construction Institute of Thailand (CIT) and Mr. Phub Rinzin in presence of Hon'ble Secretary Mr. Pasu Loharjun of Department of Industry, Thailand



7 June 2018:

CDB delegation led by Director met with Building Control Authority of Singapore (BCA) on 07/06/2018.

**11 June 2018:**

Signing of Memorandum of Understanding with Ms. Doris U. Gacho, Executive Director, Philippine Overseas Construction Board (POCB), Construction Industry Authority of the Philippines, Makati, Philippines

11 - 19 June 2018:

Training on “Advance Office Management” at Institute for Management Studies Limited Campus, Serbithang, Thimphu



21 - 22 June 2018:

Consultative meeting on “Revision of Training Module” for contractors in Paro with College of Science and Technology, Ministry of Works & Human Settlement and Construction Association of Bhutan

**26 June 2018:**

CDB signed Memorandum of Understanding with Royal Audit Authority (RAA) for the “Effective Implementation of Fixing Accountability to Contractor/Consultants on Audit Issues”.

Honesty

Contract Management

Economy

QUALITY

Professionalism

Sustainable

CONSTRUCTION DISPUTE

SBD

POLICY

Scheduling

Leadership

Transparency

Standardization

Prefabrication

ICT

Labours

Safety

REGULATION

Measurement

Ethics

e-GP

Methodology

Testing

Accountability

Contract Management

Resources

TVET

Architects

Green

Surveying

Registration

e-Tool

Cost

Planning

BoQ

Evaluation

Procurement

Time

MONITORING

Disasters

CiNet

Integrity

Contractors

Resilience

e-Zotin

Vocational

Development

Traditional Architectures

Technologies

GEO-TECHNICAL

TQM

Consultancy

Skills

Tenders

Engineers

Infrastructure

Certification

Technical Specifications

MECHANIZATION

EMPLOYMENT

Innovation

STANDARDS

Estimates

DRAWINGS

Energy

SUPPLIERS

Built Environment

MANUFACTURERS

Construction Development Board
THIMPHU BHUTAN

Telephone # +975-2-326034/326035

Fax: # +975-2-321989

www.cdb.gov.bt