

The background of the slide is a complex abstract composition. On the left side, there is a dense pattern of numerous thin, parallel lines that recede into the distance, creating a strong sense of perspective and depth. These lines are colored in a gradient, starting with warm tones like red, orange, and yellow on the far left, transitioning through green and blue, and ending with cooler purple and blue tones on the right. The lines are set against a solid black background. On the right side of the slide, there are large, overlapping, semi-transparent geometric shapes in various shades of green, ranging from light lime green to deep forest green. These shapes are layered over a white background, creating a modern, architectural feel.

Cadastral Auditing

A brief overview

Audit definition

- ▶ “An audit can be defined as a systematic and independent examination of specific activities carried out by an individual or a group of individuals, in order to determine whether such activities and related results comply with the standards, and whether these standards are implemented effectively and are suitable to achieve objectives.”
- ▶ There are two main types of audits:
 - Adequacy Audit
 - Compliance Audit

Why Audit?



- To ensure cadastral surveying is undertaken in compliance with the cadastral standards (land act, land rules & regulations, directives, manual and guidelines).



- To determine professional deficiency and put in place a process for the professional development.



- To assess the effectiveness and efficiency of key processes supporting the delivery of the service, and addressing stakeholders' needs, in compliance with legislative instruments.

Selection of Surveyors for Audit



The surveyors to be audited shall be selected based on two methods:



A. Routine Audit



B. Targeted Audit

Routine Audit



- CID will aim to audit every surveyor at least once every three years.



- Surveyors lodging surveys of land for the first time in Bhutan will be given priority in the routine audit program.



- Surveys will be selected for audit from surveys certified after the subject surveyor's previous audit date.

Targeted Audit- based on performance

- Surveyors with three or more non-compliant survey during the past year.
- An issue raised during validation and approval by CID.
- Post-approval issues identified by the public or survey profession.
- CCS/ LG surveyors with higher-than-average requisition rates.
- An area of focus (maximum transaction and high market values) for NLCS/public.
- All CCS shall be targeted for audit.

What is Audited? Office.



✓ Review the process adopted to undertake cadastral surveying and prepare cadastral data.



✓ Identify the quality control used to assure data quality and determine application on sample datasets.



✓ Also discuss issues, findings, recommendation and seek clarification for non-conformance(s) after the field audit.

A close-up photograph of a blue pushpin with a gold-colored metal stem, pinned into a map. The map shows various lines and text, including the word 'Marschhausen'. The background is slightly blurred, showing another pushpin in the distance.

What is Audited? Field.

- ▶ Assess cadastral survey compliance on the ground, but not limited to:
 - ✓ The accuracy of parcel boundary.
 - ✓ The placement of boundary markers.
 - ✓ The correctness of the control point.
 - ✓ The status of ground features or monuments, whether shown in the map.
 - ✓ Measurement accuracy of the boundary markers and monuments.

Assessment

- ▶ The error(s) determined from the Field and QA Process Audit will be rated as either major non-conformance or minor non-conformance.
- ▶ The most common non-conformant breaches are listed in the category below. The list is not intended to be an exhaustive set of all possible breaches.

Major Non- Conformance

- ▶ Cadastral survey is not conducted on the national geodetic reference datum.
- ▶ Using wrong coordinates of the control point(s) for cadastral survey.
- ▶ Existing parcel boundary is incorrectly surveyed or mapped.
- ▶ Parcel area is surveyed considerably inconsistent with Thram.
- ▶ Boundary marker is placed inaccurately beyond required accuracy tolerance.
- ▶ Cadastral survey is conducted without landowner(s) or authorized representative.
- ▶ Consolidating contiguous plots of different land types or landowners.
- ▶ Realigning parcel without a written agreement of affected landowners or in absence of the parties.

Ground features or occupations associated with the parcel are not surveyed.

Inaccurate position of the ground features.

Not using Standard measurement units.

Not showing description of boundary marker(s) on cadastral dataset.

Not using proper point identifiers or other map elements.

Lodging cadastral dataset without data cleaning.

Not using calibrated instrument, and recommended instrument(s) and software(s).

Creation of trapped land.

Incomplete information in the prescribed survey report.

Minor Non- Conformance

The audit team will present the overall report and specific finding of the surveyor whose audit outcome is unsatisfactory.

The CAC shall convene to review the audit survey report.

The committee shall determine and decide appropriate action to rectify nonconformance(s).

The surveyor shall implement corrective action within 2 months after forwarding the audit report. CID Monitors.

Review of Unsatisfactory Outcome

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Non-conformance shall be dropped if clarification and evidence provided by a surveyor justify and satisfy. (1 month to present evidence)

Consequences for repeated failures



The Director, DOLAM, shall be informed if corrective action impacts the land conveyance in process. Similarly, landowners shall be informed by the surveyor.



The Surveyor shall demonstrate to the committee how standards are to be met in future for three consecutive unsatisfactory outcomes.



The committee shall recommend to the licensing board for temporary suspension of cadastral practice beyond three consecutive unsatisfactory outcomes.



committee can recommend to the licensing board for discontinuing cadastral practice in the excessive infringement.

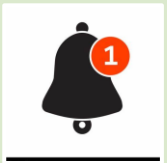
Role as a Surveyor during Audit



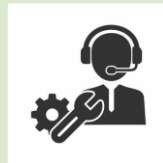
The surveyor to be audited should cooperate and renders all possible support to the auditor.



The surveyor should provide all information's correctly.



The surveyor should provide written notice within a week after receiving the audit notification to the landowner(s) whose land access is required.



The surveyor should liaise with the local authorities for any support required by the audit team.

Role as an Auditor during Audit



The audit team shall follow the manual.



The audit team shall carryout a preliminary plan on the procedures of selection.



The audit team shall serve a written notice two weeks before the actual audit to a surveyor who will be audited.



All activities must be conducted in an ethical and transparent manner without fear, favor or prejudice.



The audit team may contact owner(s) to confirm access arrangement, and the field investigation should not proceed without knowledge of the relevant landowner(s).



The audit team shall prepare a thorough audit report and present the findings to the audit committee.



The audit team shall follow-up on implementation of corrective actions.

Cadastral Audit 2024 overview

- ▶ Cadastral Audit done on March 11th , 2024.
- ▶ 35 surveyors from 9 Dzongkhags.
- ▶ Haa, Samtse, Chhukha, Sarpang, Tsirang, Dagana, Wangdue Phodrang, Punakha and Gasa.

Cadastral Audit 2024 results

- ▶ Some of pegged boundaries were out of position (>100 mm tolerance), landowners were blamed as the reason.
- ▶ CORS issues with bad connectivity in many places leading to lower accuracies.
- ▶ Not performing quality control.

Cadastral Audit 2024 recommendations

- ▶ Landowners should be encouraged to come for pegging the boundaries. Survey should not be carried out otherwise.
- ▶ Use of Base with RTK is encouraged incase of network issues.
- ▶ Instrument calibration once a year.
- ▶ Provide training for skill up.
- ▶ Check control before and end of the survey.

The background features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic visual effect.

The END

- Phuntsho Tashi (SE)