WORKING WEEK 2025 AND Locate25 THE NATIONAL GEOSPATIAL CONFERENCE
Collaboration, Innovation and Resilience: Championing a Digital Generation
Brisbane, Australia 6–10 April

A Study on the Adaptation of the Malaysian Cadastral Survey Framework for Underground Utility Detection Survey

Hafiz Zakaria, *Ezam Ariffin, Zulkarnaini Mat Amin and Zulkepli Majid*

Association of Authorised Land Surveyors Malaysia (PEJUTA)
hafiz.pejuta@gmail.com
+60 17 493 3289

ORGANISED BY FIG Geospatial Council of Australia
PLATINUM SPONSORS Australian Government CHCNAV esri THE SCIENCE OF WHERE Leica Geosystems Meter Surveyors Australia

Introduction

1. A Geomatics and Land Surveying industry based research, from the perspective of a Licensed Land Surveyor and a practitioner.
2. Current issues experienced in Underground Utility Detection Survey are identical to issues faced by Cadastral Survey prior to the establishment of Malaysian Cadastral Survey framework in 1974.
3. Studying avenues to adapt the Malaysian Cadastral Survey framework into the Underground Utility Detection Survey practice, thus establishing the Underground Utility Detection Survey framework.

The Malaysian Cadastral Survey Framework

The basis of Malaysian Cadastral Survey Framework, post 1974:

1. Land owners appoint Licensed Land Surveyors but deposit the Title Survey fees to the Land Surveyors Board prior to start of survey. Survey fees disbursed upon completion of project. *(secure contract and survey fees)*
2. The Land Surveyors Board acts as a trustee and depository of Title Survey fees. The Land Surveyors Board shall issue a Certificate to be used for:
   - Registration of Qualified Titles
   - Licensed Land Surveyors to register files at JUPEM
   - Apply for developer's license

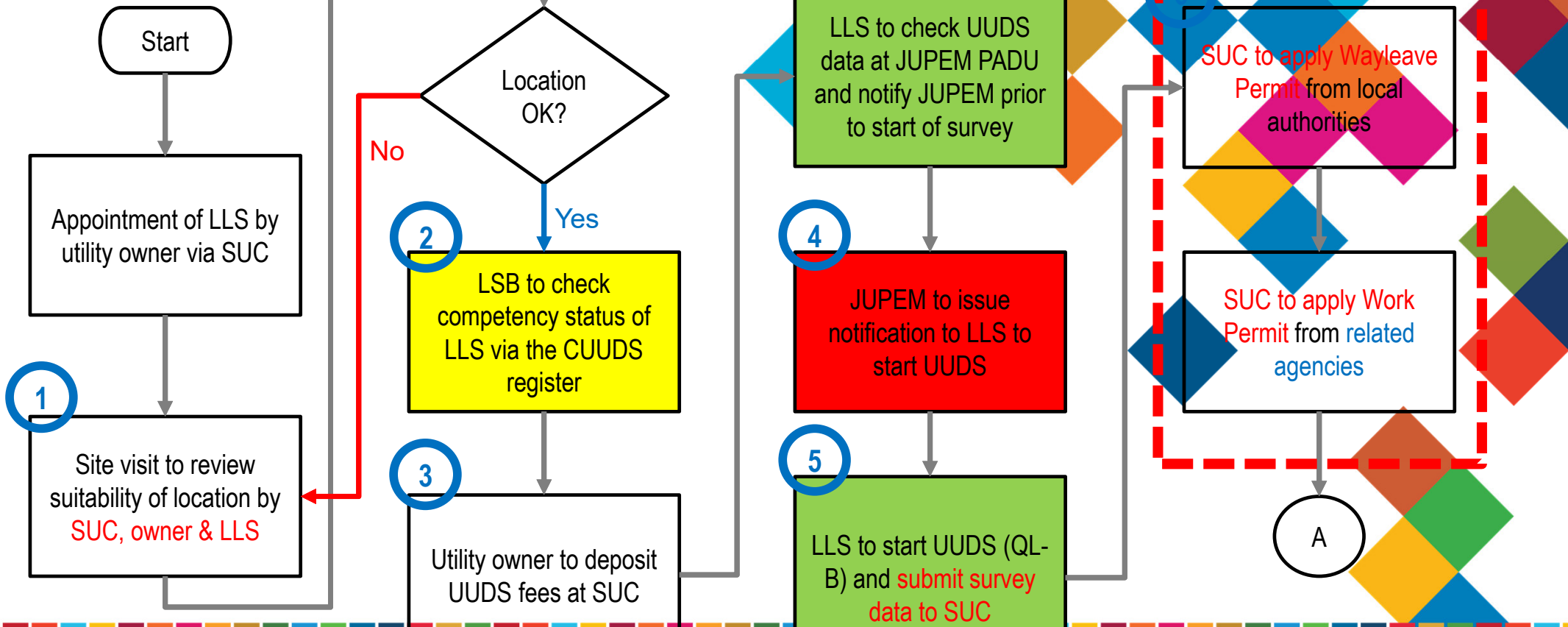
   (ensures payment of survey fees and completion of project)
3. Dept. of Survey and Mapping Malaysia (JUPEM) acts as depository of Title Survey data:
   - To receive survey data, QAQC process and approval of Certified Plans
   - Update National Digital Cadastral Data Base (NDCDB)
   - Submit B1.tif file to the Land Office for registration of Final Title

   (ensures update of NDCDB and registration of Final Title)

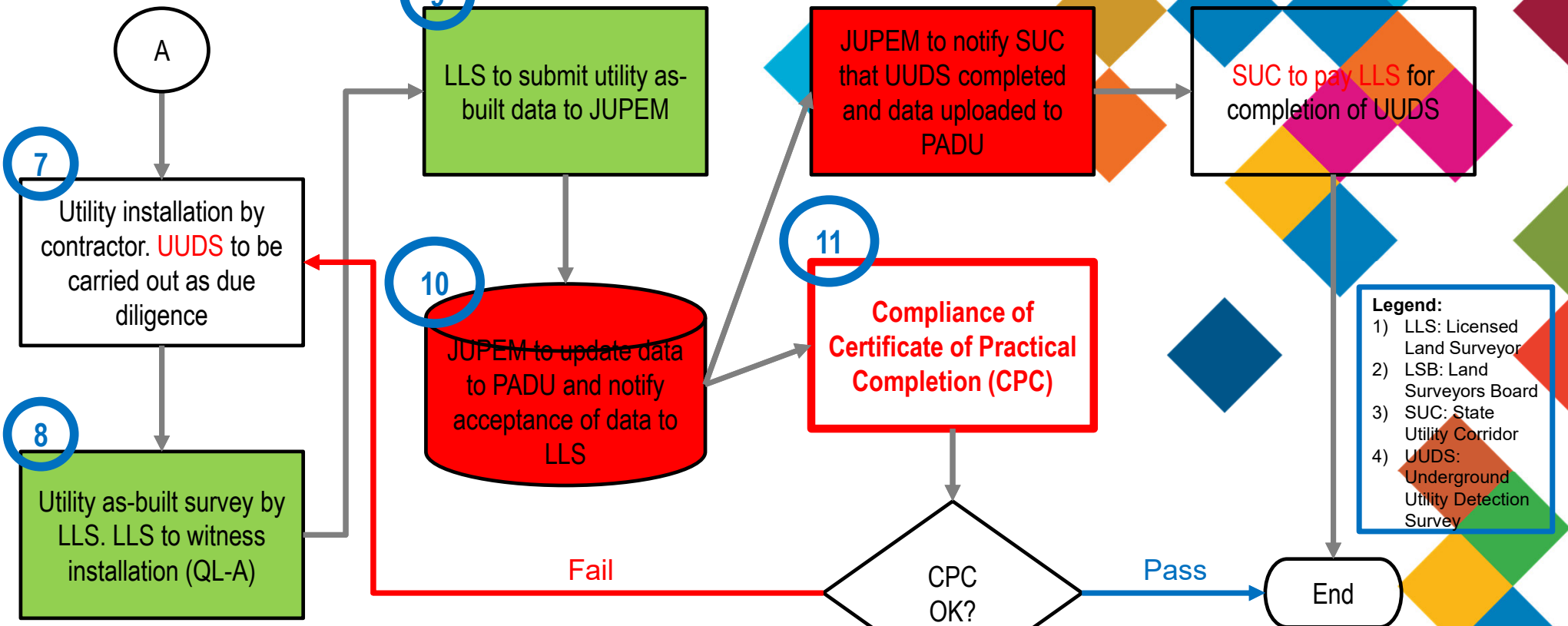
Methodology in Developing the Underground Utility Detection Survey Framework

The Practitioner	The Regulatory Body	The Agency
Input and Experiences from Industry	Legal Advice	Publish and Enforce

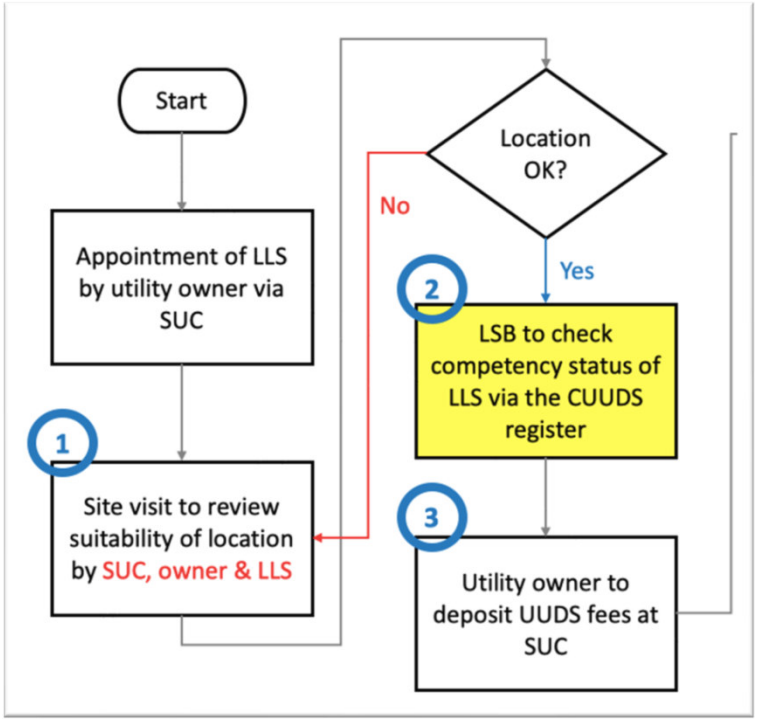
The Proposed Underground Utility Detection Survey Framework – 1



The Proposed Underground Utility Detection Survey Framework – 2



Explanation of the Proposed Underground Utility Detection Survey Framework – 1

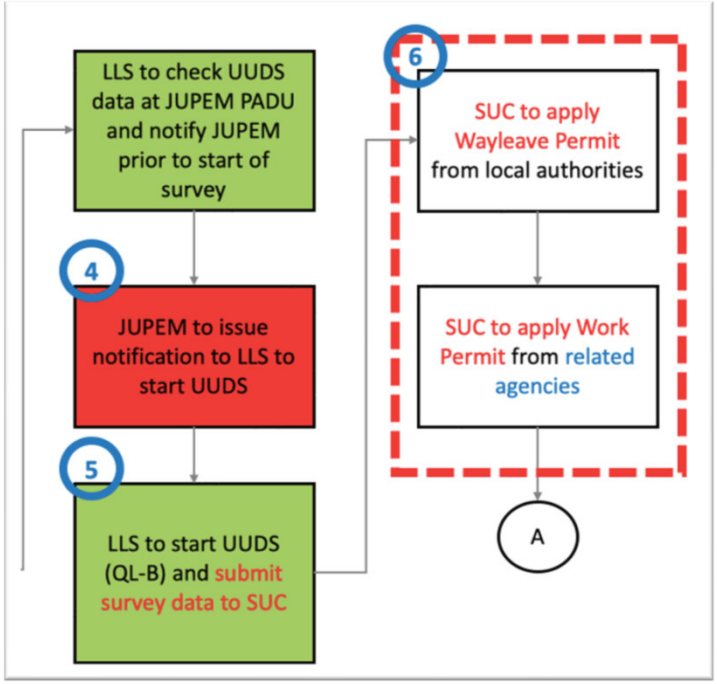


1) Site visit to review suitability of location for utility installation. LLS registered with SUC as panel and must fulfil requirements as per JUPEM Circular Letter 1/2020. Certain agencies (eg GAS Malaysia) requires UUDS operator to be certified as well.

2) To ensure that the LLS and operators are competent and certified. The current UUDS fees are yet to be formally approved by the MOF. PEJUTA's **Buku Jingga** may be used as a guideline for UUDS fee structure.

3) Utility owner to deposit UUDS fees at SUC as part of contract requirement.

Explanation of the Proposed Underground Utility Detection Survey Framework – 2

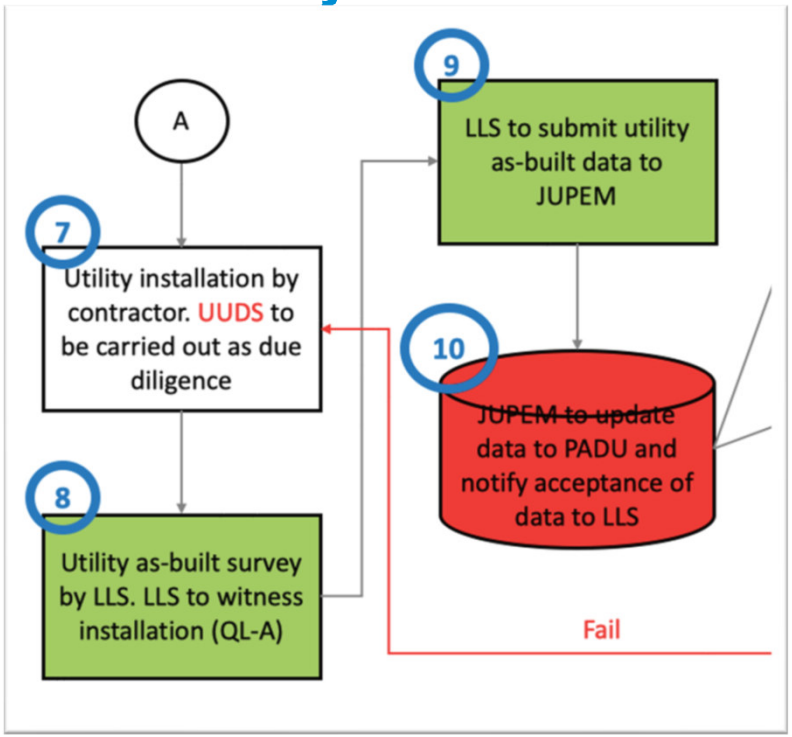


4) Notification from JUPEM with condition that UUDS data to be submitted to JUPEM upon completion of survey. Refer to Cabinet decision on 24 August 1994.

5) LLS to start UUDS survey with QL-B standard and submit data to SUC for preparation of permit application by the SUC. UUDS to comply with current JUPEM Circulars.

6) SUC to apply Wayleave Permit and Work Permit from the relevant agencies. Permits are for utility contractors to start the utility installation works.

Explanation of the Proposed Underground Utility Detection Survey Framework – 3



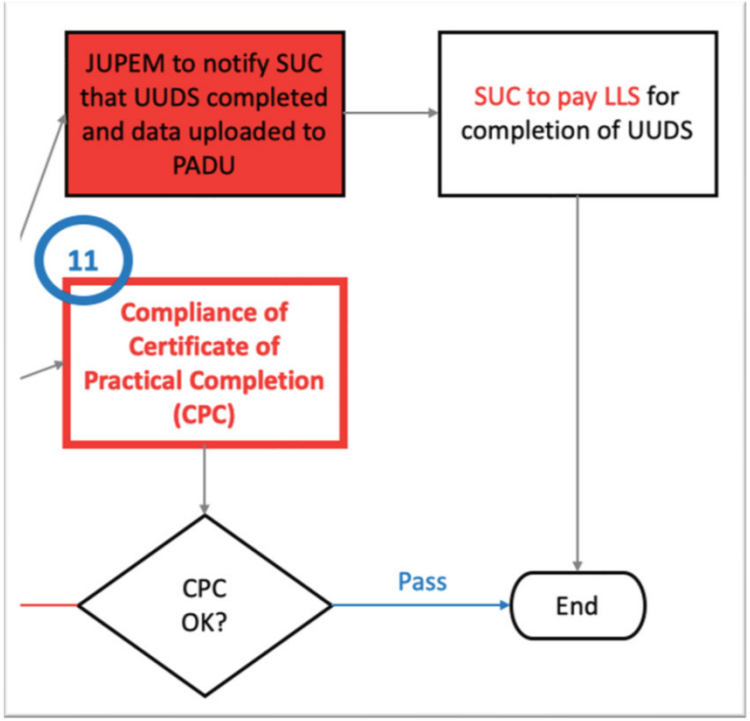
7) Utility contractor to start installation process. UUDS to be carried out as precautionary measures.

8) LLS to carry out utility installation as-built survey. Two options available:
   a) Witness the installation and use typical engineering survey method (QL-A)
   b) UUDS method upon completion of installation (QL-B)

9) LLS to submit UUDS data to JUPEM as per the requirement of JUPEM Circular No. 2/2016.

10) JUPEM to update PADU and notify LLS on acceptance of data, similar to approval of Certified Plans in Cadastral Survey Framework.

Explanation of the Proposed Underground Utility Detection Survey Framework – 4



11) Certificate of Practical Completion (CPC) requirements to be improved. Submission of UUDS as-built data as part of requirements. The typical practice is that UUDS data for permit application and design are updated manually (sketched) and submitted as as-built. This is against the KPKT Circular No. 7/2014 where UUDS needs to be surveyed by competent LLS and also the OSC 3.0+ requirements.

Implementation Issues

- Three major issues preventing full implementation of the framework:
  1. The non-existence of *Enabling Clause* for Underground Utility Detection Survey in the Licensed Land Surveyors Act. (After 66 years establishment of the Licensed Land Surveyors Act 1958 (Act 458), The new Amendment was gazetted on 22 October 2024 and came into effect on 23 October 2024)
  2. The non-existence of *Enabling Clause* for Underground Utility Detection Survey in the Licensed Land Surveyors Regulations.
  3. The non-existence of *Scale of Fees* for Underground Utility Detection Survey.
- As a result, the Underground Utility Detection Survey framework was modified and issued as a workflow on 30th September 2021 to the Utility Owners, State Authorities, State Utility Corridors, Ministries and Government Agencies.

Conclusion

- The Underground Utility Detection Survey framework was developed in the interest of the Geomatics and Land Surveying profession in general and the Licensed Land Surveyors in particular.
- The Underground Utility Detection Survey framework shall ensure that:
  1. The JUPEM PADU (Underground Utility Database) is being updated upon every utility installation exercise without any cost incurred upon JUPEM. *(protects National interest)*
  2. The UUDS practice is being regulated technically and financially. *(ensures completion of project and payment of survey fees)*
  3. The installation and management of underground utilities can be achieved without the the presence of State Utility Corridors. This shall benefit the Rakyat as the end user. *(increase benefit to utility stakeholders)*

Conclusion

- The Underground Utility Detection Survey framework was developed in the interest of the Geomatics and Land Surveying profession in general and the Licensed Land Surveyors in particular.
- The Underground Utility Detection Survey framework shall ensure that:
  1. The JUPEM PADU (Underground Utility Database) is being updated upon every utility installation exercise without any cost incurred upon JUPEM. *(protects National interest)*
  2. The UUDS practice is being regulated technically and financially. *(ensures completion of project and payment of survey fees)*
  3. The installation and management of underground utilities can be achieved without the the presence of State Utility Corridors. This shall benefit the Rakyat as the end user. *(increase benefit to utility stakeholders)*

The most relevant SDGs related to the presentation and theme of this session

1st relevant SDG

2nd relevant SDG

3rd relevant SDG

SUSTAINABLE DEVELOPMENT GOALS

International Federation of Surveyors supports the Sustainable Development Goals

STEP 1: SELECT HERE THE THREE MOST RELEVANT SDGs
STEP 2: COPY THE SDG INTO PREVIOUS SLIDE

THANK YOU