INSTALLATION OF WIND MEASURING MAST

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Outline

- Introduction
- Wind Resource Assessment status in Tanzania
- Location of Mafia Islands
- Site selection Criteria
- Wind Measuring Mast Installation procedures
- Conclusion

Introduction

- A reliable and professional carried out wind study including high quality wind measurements is a crucial requirement when developing wind projects;
- Such work should be carried out by an independent consultant or institute with the necessary expertise.

The wind study should include the following:

- Identification of candidate sites and fact-finding work;
- Detailed assessment and roughness classification of the site
- On-site quality wind measurements with calibrated equipment;
- Correlation to long term reference station(s) for long term scaling;
- Establishment of a long term wind atlas for the site based on a flow model;

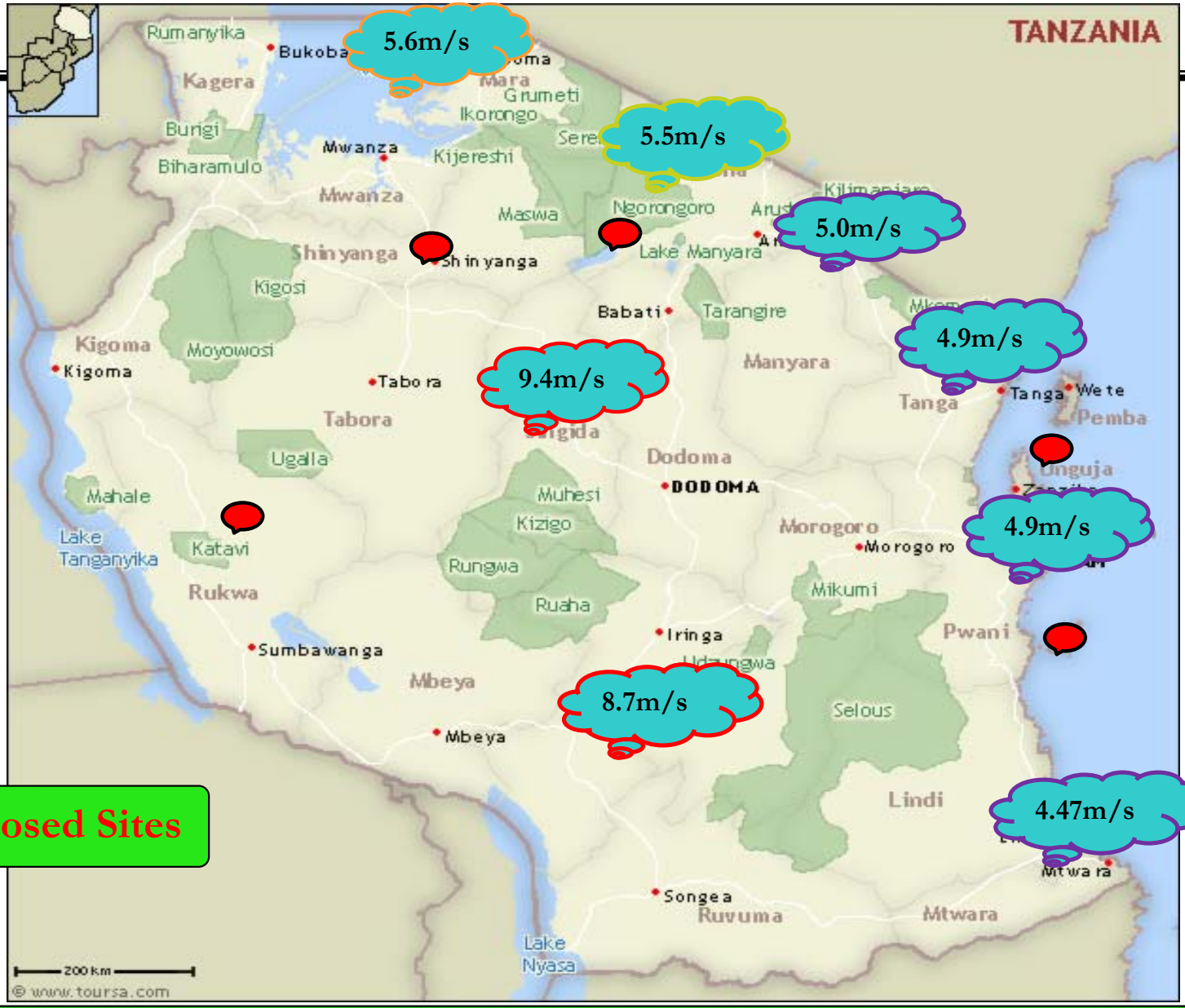
Wind Resource Assessments in Tanzania

- Within the framework of Danida supported project four measuring stations (Mkumbara, Karatu, Gomvu and Litembe) were erected in 2002. The project aimed at investigating the feasibility of commercial wind farm projects in Tanzania;
- The stations operated fully automatically (wind speed & direction, temperature, pressure and solar radiation). The height of the masts is 30m.

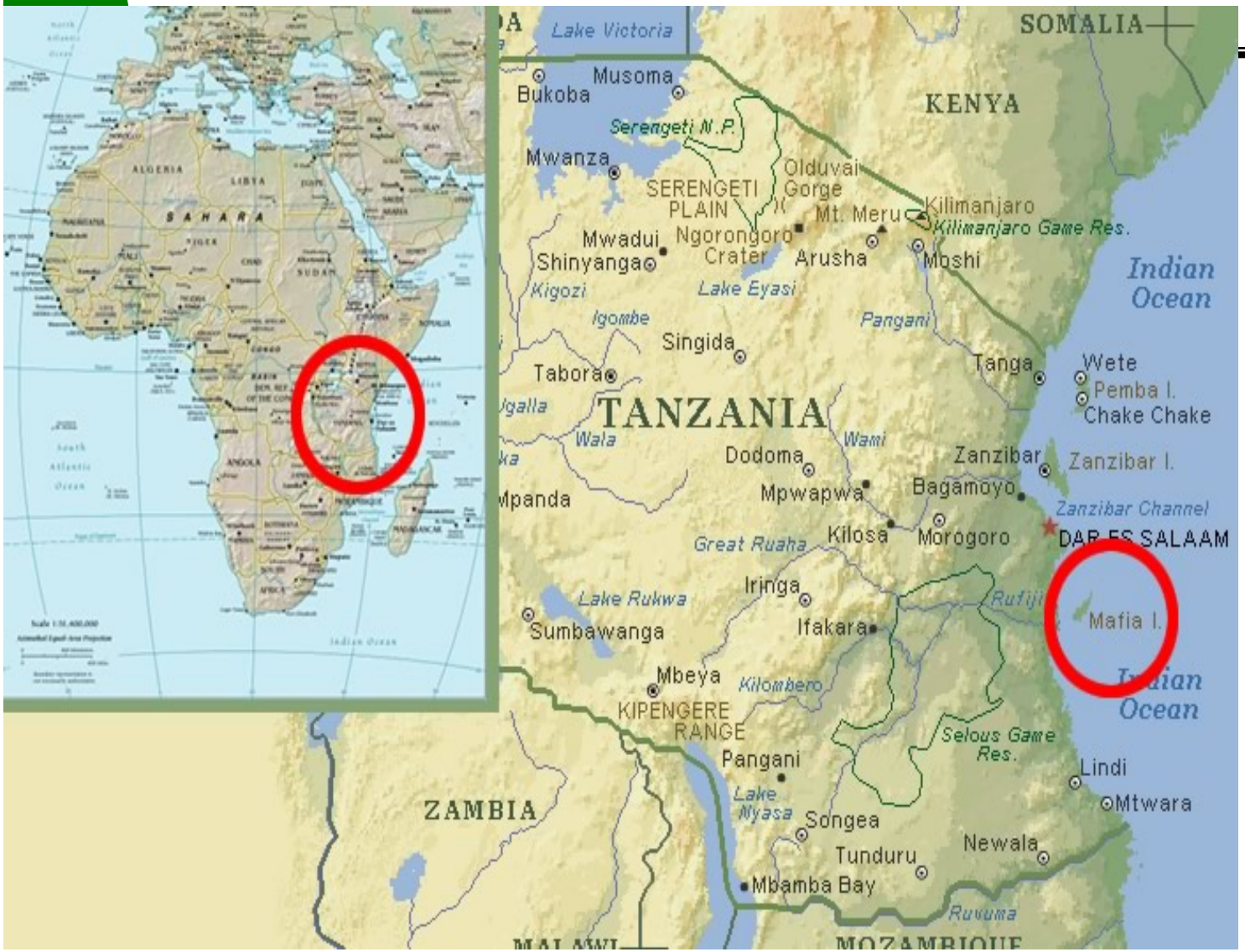
Wind energy project under afb/MEM//TANESCO -Tanzania Rural Electrification

- Rural electrification master plan studies are also integrating inputs of the wind project. Since May 2005 NRG Wind Masts and data loggers have been installed at Makambako, Mwanga, Ukerewe and Singida and since then wind data collection are being done

Assessment Results



Location of Mafia Islands



Location of Mafia Islands

Jimbo

Site selection Criteria

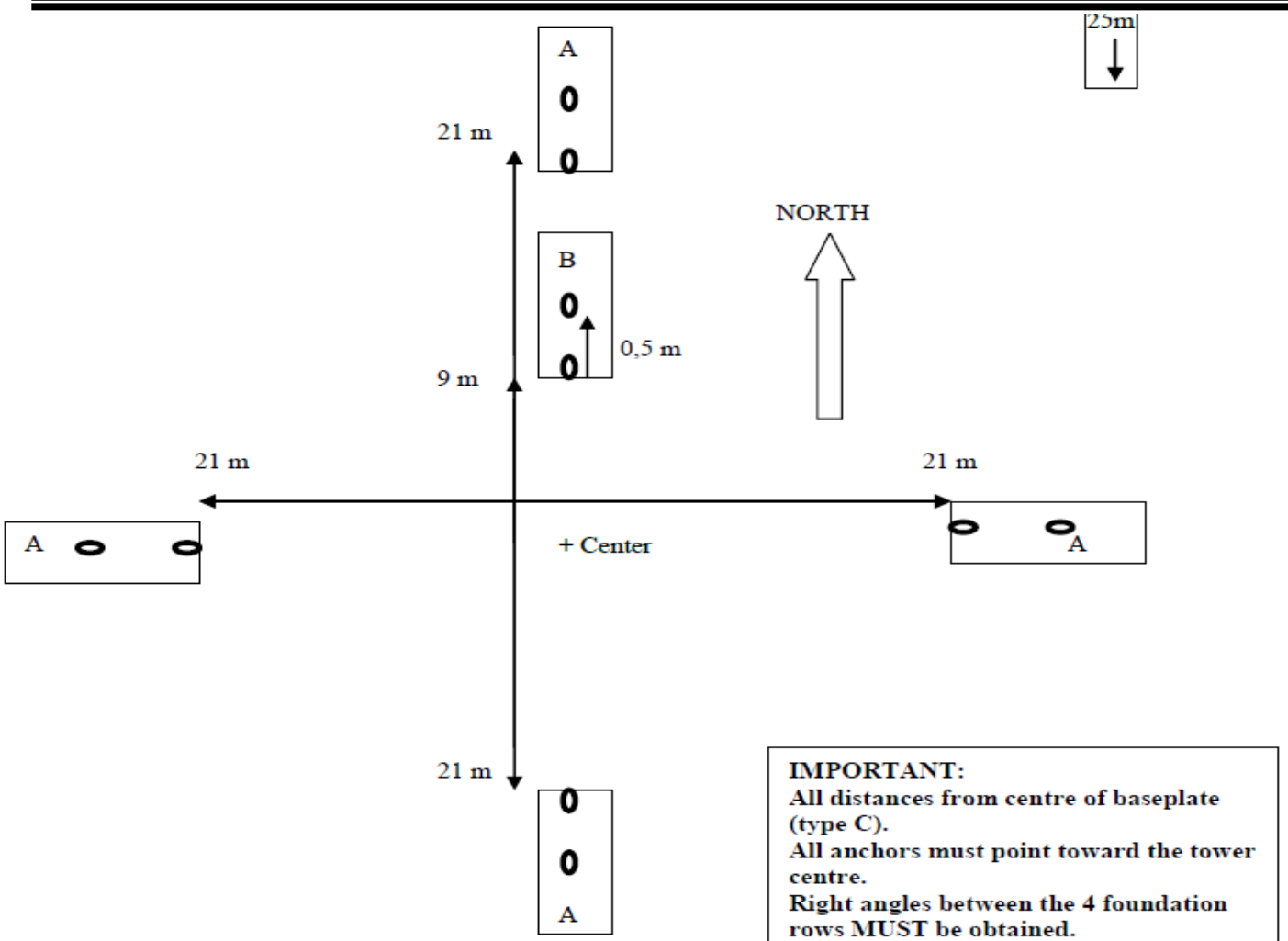
- Indications read from the topographical maps of Tanzania (desk study);
- Indicators in the land observed during field trips to the sites (shelter and flagging trees etc);
- Interviews conducted with local people;
- It should be justified that a wind farm could be installed at the site; i.e. the site should be free from tall obstacles of more than 10m height.

Wind Mast Installations

Tools Needed

- Electric Winch;
- Gin Pole;
- Spirit level tool;
- Adjustable spanner, (monkey wrench) 0-40mm;
- Pipe wrench;
- 2 roles of string, each 50m;
- Large hammer;
- Set of screw driver;
- Measuring tape, instruments;
- Safety Tools;
- Plastic Binders;

Wind Mast Installations-Ground Layout



IMPORTANT:
All distances from centre of baseplate (type C).
All anchors must point toward the tower centre.
Right angles between the 4 foundation rows MUST be obtained.

Wind Mast Installations

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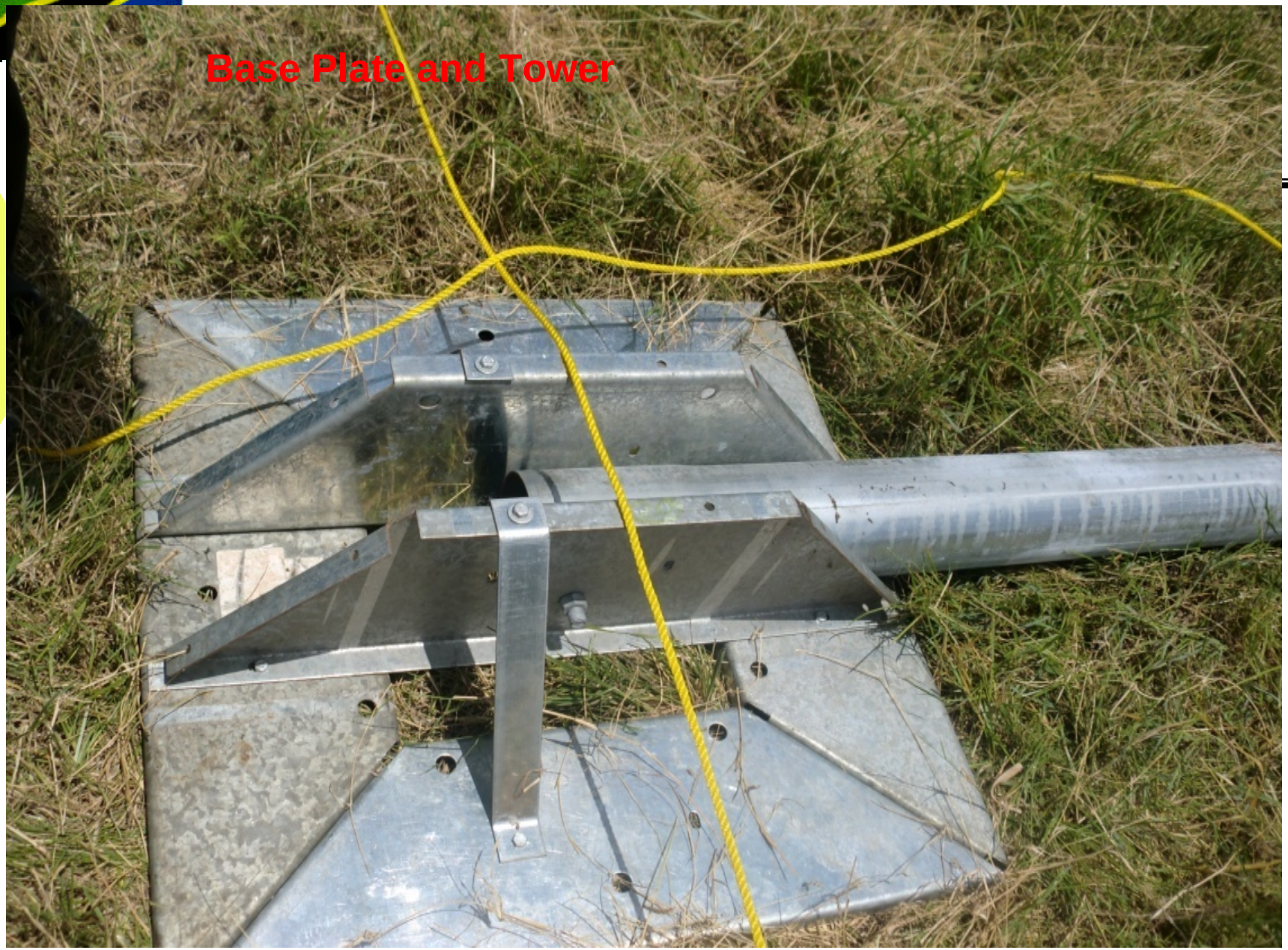
Tower Base Plate


Base Plate and Tower


Gin Pole and Tower

Assembly and Tower Erecting

Assembly and Tower Erecting

Assembly and Tower Erecting

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Assembly and tower erection

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Conclusion and Challenges

- Lack of equipments in site;
- There were no modern workshop in Islands;
- Maintenance of wind measuring mast is challengeable;
- Data capturing is still local;
- Data analysis by Consultants;
- Too long to develop Wind Power Plants;
- Transportation of WTG equipments;
- If you have never install wind mast, Never try it yourself;

Ahsanteni Sana!!!