**TERMS OF REFERENCE**

**Enhancing Project management through the effective use of Stata**

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| **Activity Name** | **Project management** |
| **Target Participants** | **Program and Support Staff** |
| **Proposed Date** | **3rd to 7th March 2025** |

1. **Background and rationale**

STATA is a powerful statistical software used by professionals in various fields, including economics, public health, social sciences, and business. It provides a comprehensive suite of tools for data manipulation, statistical analysis, and graphical representation. As part of the organization's capacity-building initiative, there is a need to train staff members in using STATA effectively. This will ensure they are well-equipped to handle complex project management tasks including data mining and analysis, contributing to more efficient and accurate decision-making. To achieve the above, the AO is looking for an experienced consultant or firm that will timely deliver the training ensuring all project management modules are covered. The consultants/firms must confirm their capacity in terms of purchasing and installing the necessary STATA licenses for the training participants.

1. **Objectives**

The primary objective of this Terms of Reference (ToR) is to delineate the specific requirements and expectations for the consultant tasked with delivering comprehensive STATA training and purchase of the software. This training is intended to enhance the technical expertise of the MEL and programme teams. The consultant is expected to achieve the following goals:

* **Training Objective**:  
  To contribute to improving project management through the effective use of STATA software

1. **OUTCOME**

**The training outcome include:**

1. **Improved Data Management Skills:**

* Data Import and Export: learn how to efficiently import data from various sources (CSV, Excel, SPSS, etc.) and export it for use in other software or for reporting purposes.
* Data Cleaning and Transformation: You'll gain proficiency in cleaning messy datasets, handling missing data, creating new variables, and reshaping data (long to wide and vice versa).
* Data Merging and Appending: Training will teach you how to merge and append datasets correctly, including handling common challenges like duplicate keys and unmatched records.

1. **Proficiency in Statistical Analysis:**

* Descriptive Statistics: Understand how to summarize datasets, calculate means, medians, standard deviations, frequencies, and cross-tabulations.
* Statistical Tests: Learn how to run t-tests, chi-squares, ANOVAs, correlation tests, and non-parametric tests.
* Regression Analysis: Master linear and logistic regression, as well as advanced topics such as multi-level models, fixed and random effects, and instrumental variables.
* Time-Series Analysis: For those interested in economics or finance, time-series techniques like ARIMA models, seasonal adjustments, and forecasting are often covered.
* Panel Data and Survival Analysis: If you’re working with data over time or subjects observed repeatedly, you'll become familiar with methods for analyzing panel and survival data.

1. **Graphing and Visualization:**

* Creating High-Quality Graphs: Learn how create a wide variety of graphs (scatter plots, bar graphs, histograms, box plots, etc.), customizing their appearance, and ensuring they are publication ready.
* Graph Customization: Learn to use options to modify titles, axis labels, legends, and other features to make your visualizations clearer and more informative.

1. **Automation and Programming in Stata:**

* Writing Do-files: You’ll learn how to write and execute do-files, automating repetitive tasks and analysis workflows.
* Loops and Macros: Understand how to use loops and macros for efficient data manipulation and statistical analysis, saving time and reducing errors.
* Writing Custom Programs: Learn to write your own Stata commands and programs, allowing you to customize Stata functionality for your own specific needs.

1. **Efficiency and Reproducibility:**

* Reproducible Research: Training will emphasize creating do-files that allow for reproducibility of your work, ensuring that you can revisit your analyses months or years later and understand exactly how results were obtained.
* Use of Stata’s Built-in Functions and Commands: Gain familiarity with a wide range of built-in commands for more efficient analysis, reducing the need for manual calculations.

1. **Advanced Statistical Topics:**

* Multivariate Analysis: Techniques like factor analysis, principal component analysis (PCA), and cluster analysis.
* Advanced Econometrics: Techniques such as instrumental variable (IV) regression, propensity score matching, and limited dependent variable models.

1. **Practical Application:**

* Real-World Case Studies: Many Stata training sessions will incorporate case studies, allowing you to apply theoretical concepts to actual datasets, reinforcing the learning process.
* Hands-On Practice: Stata training typically includes interactive exercises, allowing you to apply your knowledge in real-time.

1. **Scope of work**

The consultant shall undertake the following activities:

**3.1 Training**

* **Audience**:  
  Staff members who are involved in project management, data analysis, research, or decision-making processes. The target audience includes both beginners (introductory level) and intermediate users who are looking to enhance their existing skills.
  1. **Training Content**:  
     The training program will cover the following areas:
  2. **Introduction to STATA**: Interface, data import/export, and basic commands.
  3. **Data Management**: Data cleaning, reshaping, merging, and creating new variables.
  4. **Statistical Analysis**: Descriptive statistics, hypothesis testing, regression models, and ANOVA.
  5. **Advanced Analysis Techniques**: Time series analysis, panel data, survival analysis, and multilevel models.
  6. **Graphical Representations**: Creating visualizations for data presentation, including histograms, scatter plots, and regression diagnostics.
  7. **STATA Macros and Automation**: Streamlining repetitive tasks and creating reusable scripts.
  8. **Troubleshooting and Best Practices**: Handling errors, optimizing code, and effective documentation of analyses.
  9. **Stata programming**: Do-file and do-file editor, how to create a Do-file, Running Do-file, Loops (For-valve, while and foreach loops)

1. **Methodology**

* **Training Methodology**:
  + The training will be delivered through a combination of theoretical presentations and hands-on practical exercises.
  + Participants will engage with sample datasets, work on real-world case studies, and be encouraged to ask questions during the sessions.
* **Training Duration**:  
  The training will be conducted for 4 **days**, depending on the complexity of the material and the level of the participants.
* **Training Materials**:
  + Participant handouts with step-by-step guides, command syntax examples, and best practices.
  + Access to online tutorials or supplementary resources.
  + A list of recommended reading materials and resources for further self-study.

1. **Deliverables**

Upon completion of the consultancy, the consultant shall deliver the following:

* A detailed training module and schedule.
* Training materials and resources for staff.
* Training sessions for staff.
* Assessment reports.
* A final report summarizing the training outcomes, feedback, and recommendations.

1. **Eligibility and qualifications**

* Proven experience in delivering STATA trainings.
* Proven ability to assess training needs and tailor same to meet organizational requirements.
* Strong communication, presentation, and facilitation skills especially adult learning.
* Relevant certification or qualification.
* Excellent analysis and synthesis skills.
* Extensive experience participation, co-creation and learning.
* Relevant experience with adult friendly teaching materials.

1. **Applications**

The technical and financial proposal up to 5 pages maximum should include the following:

* Certified copy of certificate of registration/Incorporation.
* Certified copy of valid tax compliance certificate.
* Certified copy of PIN/VAT certification.
* Physical location and contact address of custodians of similar works done by the bidder within the last 2 years. Please note that this information and sites will be verified by NRC.
* Proposed methodology, including a work plan.
* Composition of the team.
* CV of member(s) of the team including references.
* Detailed budget.
* An extract (3-5 pages) of similar missions and links to the firm/consultant website (if any).
* A cover letter with the following information: a description of how their skills, experience and qualifications are relevant to the requirements of this assignment.

**Applications are accepted in English at the following address:** [**ng.tenders@nrc.no**](mailto:ng.tenders@nrc.no)**. no later than 25th February 2025.**