ArcGIS Pro Workshop

## Regional Coordination Meeting – Amman, 11 to 13 February 2019

##### Background and Rationale

With the introduction increasingly ambitious academic minimum standards for data analysis across the organisation, the required capacity must be built up across teams, both in terms of skill as well as in terms of efficiency.

As part of the overall strategy, this will be achieved through a system that enables people to share tools across impact. For this, we need to establish:

* A standardised system for building, sharing and accessing tools
* An agreed level of skill between people that create ( R ) tools and those that use them
* A path to move from basic R skills first to “tool users”, and further on to “tool builder” (This training is about the former)

This strategy will be using R as the base language, among many other reasons because it has a well established and proven system and learning resources precisely for sharing, using and building tools between people across the world.

##### Learning Goals

After the training, successful participants will

* be able to find, install, find relevant documentation and apply any of the already available IMPACT R tools matching the standards, as well as R tools developed in the future
* Be familiar with existing tools that will be taught as examples:
* Automated data cleaning checks
* Basic Quantitative Analysis needed for household interviews in line with Guidelines
* Summary statistics for stratified cluster samples
* Hypothesis tests for stratified cluster samples
* Produce basic data visualisations for the above
* Know how to report issues and how to get help effectively
* Be familiar with the quantitative analysis minimum standards and associated guidelines

##### Required Preparation

The [Required Preparation is outlined in detail here](https://rpubs.com/impact_dataunit/impact_usertraining)

Day 1

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| Time | Agenda Item |
| 9:00 - 10:30 | Prerequisite Test  **Introduction & Overview**  The IMPACT data unit capacity building framework  Expected learnings  The power of R |
| 10:30 - 11:00 | **Coffee Break** |
| 11:00 - 13:00 | **Sharing Tools in R**  R package Sharing System  Github as a platform for R packages  Accessing Impact tools |
| 13:00 - 14:00 | **Lunch** |
| 14:00 - 16:00 | **Practical Session 1A**  basic data cleaning checks in R  find, install, load, access documentation, get help, run |
| 16:00 - 16:30 | **Coffee Break** |
| 16:30 - 18:00 | **Practical Session 1B**  Finalise tasks  Review results; Q&A  Bonus task: peak behind the curtain – make your own  ***Review, discussion and feedback*** |

Day 2

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| Time | Agenda Item |
| 9:00 - 10:30 | **With great power great responsibility: Analysis Guidelines Review**  Reminder: statistics 101  Exploratory vs. validatory analysis: Joys and Risks |
| 10:30 - 11:00 | **Coffee Break** |
| 11:00 - 13:00 | **The “hypegrammaR” Tool** **for quantitative analysis of random samples**  Philosophy; Structure; A practical Example |
| 13:00 - 14:00 | **Lunch** |
| 14:00 - 16:00 | **Practical Session 2A**  The “hypegrammaR” Tool for quantitative analysis of random samples  find, install, load, access documentation, get help, run |
| 16:00 - 16:30 | **Coffee Break** |
| 16:30 - 18:00 | **Practical Session 1B**  Finalise tasks  Review results; Q&A  Bonus task: make your own  ***Review, discussion and feedback*** |

Day 3

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| Time | Agenda Item |
| 9:00 - 10:30 | **First steps beyond: how to get from using Tools to building Tools – What to learn next?**  The Path to Mastery:  Modern R: Tidyverse & co   * Environments and Namespaces: How to code with a clear mind   Software Design: Pure functions; Cohesion and decoupling; Test driven development; Technical Debt; Useful documentation  Software design: Examples  **Exercise:** Refactoring |
| 10:30 - 11:00 | **Coffee Break** |
| 11:00 - 13:00 | ***Overall Review, discussion and feedback***  Bonus Session; One of:   * Knitr and RMarkdown: The gold standard of reproducible research * The “apply” family of functions |
| 13:00 - 14:00 | **Lunch** |
| 14:00 - 18:00 | Team Building Exercise |
| 19:00 - 20:00 | **Dinner** |