# Data Management Plan for Global Minds PhD Project Abadi Tesfay Abay

| 1. General Project Information | |
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| Name Grant Holder & ORCID | *Abadi Tesfay Abay, https://orcid.org/0009-0006-8907-3020* |
| Contributor name(s) (+ ORCID) & roles | *Prof. Dr. Ir. Bart Muys, https://orcid.org/0000-0001-9421-527X, Supervisor, KU Leuven*<br>*Prof. Dr. Emiru Birhane, https://orcid.org/0000-0002-8644-5961, Co-supervisor, Mekele University (local)*<br>*Prof. Dr. Ir. Olivier Honnay, http://orcid.org/0000-0002-4287-8511, Co -supervisor, KU Leuven* |
| Project number [1] & title | *Effects of Tree Diversity on Mycorrhiza and Water Dynamics in A Tropical Dry Forest Experiment: Experimental study.* |
| Funder(s) GrantID [2] | ZBGM/24/001 |
| Affiliation(s)<br>Faculty of Bioscience Engineering, Department of Earth and Environmental Sciences, KU Leuven | ☑ KU Leuven<br>☐ Universiteit Antwerpen<br>☐ Universiteit Gent<br>☐ Universiteit Hasselt<br>☐ Vrije Universiteit Brussel<br>☐ Other:<br>ROR identifier KU Leuven: 05f950310 |

[1] "Project number" refers to the institutional project number. This question is optional. Applicants can only provide one project number.

[2] Funder(s) GrantID refers to the number of the DMP at the funder(s), here one can specify multiple GrantIDs if multiple funding sources were used.

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| Please provide a short project description | The research project aims to investigate the effects of tree species diversity on mycorrhiza (AMF), soil water, and plant water relations across the tree species gradient. This research study will be conducted on the existing IDENT Ethiopia tree diversity experiment. This tree diversity experiment comprises nine indigenous trees, distributed over 270 plots (monoculture, two species mixed, and four species mixed) and three blocks. Primary data will be collected from this tree diversity experiment. Spore density, root colonization, AMF diversity, soil water, and plant water potentials of the different tree species will be investigated along the species diversity gradient. Findings will be important for dryland forest restoration. |

## 2. Research Data

List and describe all datasets or research materials that you plan to generate/collect or reuse during your research project. For each dataset or data type (observational, experimental etc.), provide a short name & description (sufficient for yourself to know what data it is about), indicate whether the data are newly generated/collected or reused, digital or physical, also indicate the type of the data (the kind of content), its technical format (file extension), and an estimate of the upper limit of the volume of the data [3]

| | | | | *Only for digital data* | *Only for digital data* | *Only for digital data* | *Only for physical data* |
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| Dataset Name | Description | New or Reused | Digital or Physical | Digital Data Type | Digital Data Format | Digital Data Volume (MB, GB, TB) | Physical Volume |
| | | ☒ Generate new data<br>☐ Reuse existing data | ☒ Digital<br>☐ Physical | ☐ Audiovisual<br>☐ Images<br>☐ Sound<br>☒ Numerical<br>☐ Textual<br>☐ Model<br>☐ Software<br>☐ Other: | | ☒ < 1 GB<br>☐ < 100 GB<br>☐ < 1 TB<br>☐ < 5 TB<br>☐ > 5 TB<br>☐ NA | |
| Mycorrhizal data | Soil and root samples will be collected from IDENT Ethiopia site | New data will be generated | | | | | |

[3] Add rows for each dataset you want to describe.

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| | Root colonization, molecular diversity and spore abundance of AMF will be analyzed at lab | | | | | | |
| Soil moisture data | Soil samples will be collected from the field and soil water content will be determined using gravimetric method in Laboratory | New data will be generated | | | | | |
| Plant water potential | Sample leaves will be collected from different tree species. Leaf water potentials of different trees species will be measured using pressure chamber. | | | | | | |

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*GUIDANCE:*
*The data description forms the basis of your entire DMP, so make sure it is detailed and complete. It includes digital and physical data and encompasses the whole spectrum ranging from raw data to processed and analysed data including analysis scripts and code. Physical data are all materials that need proper management because they are valuable, difficult to replace and/or ethical issues are associated. Materials that are not considered data in an RDM context include your own manuscripts, theses and presentations; documentation is an integral part of your datasets and should described under documentation/metadata.*
*RDM Guidance on data*

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| If you reuse existing data, please specify the source, preferably by using a persistent identifier (e.g. DOI, Handle, URL etc.) per dataset or data type. | |
| Are there any ethical issues concerning the creation and/or use of the data (e.g. experiments on humans or animals, dual use)? If so, refer to specific datasets or data types when appropriate and provide the relevant ethical approval number. | ☐ Yes, human subject data; provide SMEC or EC approval number:<br>☐ Yes, animal data; provide ECD reference number:<br>☐ Yes, dual use; provide approval number:<br>☒ No<br>Additional information: |
| Will you process personal data[4]? If so, please refer to specific datasets or data types when appropriate and provide the KU Leuven or UZ Leuven privacy register number (G or S number). | ☐ Yes (provide PRET G-number or EC S-number below)<br>☒ No<br>Additional information: |
| Does your work have potential for commercial valorization (e.g. tech transfer, for example spin-offs, commercial exploitation, …)?<br>If so, please comment per dataset or data type where appropriate. | ☐ Yes<br>☒ No<br>If yes, please comment: |

[4] See Glossary Flemish Standard Data Management Plan

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| Do existing 3rd party agreements restrict exploitation or dissemination of the data you (re)use (e.g. Material/Data transfer agreements, research collaboration agreements)?<br>If so, please explain to what data they relate and what restrictions are in place. | ☐ Yes<br>☒ No<br>If yes, please explain: |
| Are there any other legal issues, such as intellectual property rights and ownership, to be managed related to the data you (re)use?<br>If so, please explain to what data they relate and which restrictions will be asserted. | ☐ Yes<br>☒ No<br>If yes, please explain: |

| 3. Documentation and Metadata | |
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| Clearly describe what approach will be followed to capture the accompanying information necessary to keep **data understandable and usable**, for yourself and others, now and in the future (e.g. in terms of documentation levels and types required, procedures used, Electronic Lab Notebooks, README.txt files, Codebook.tsv etc. where this information is recorded).<br><br>*RDM guidance on documentation and metadata*. | **The data will be clearly organized in MS excel files.** |

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| Will a metadata standard be used to make it easier to **find and reuse the data**?<br><br>If so, please specify which metadata standard will be used. If not, please specify which metadata will be created to make the data easier to find and reuse.<br><br>*REPOSITORIES COULD ASK TO DELIVER METADATA IN A CERTAIN FORMAT, WITH SPECIFIED ONTOLOGIES AND VOCABULARIES, I.E. STANDARD LISTS WITH UNIQUE IDENTIFIERS.* | ☐ Yes<br>☒ No<br>If yes, please specify (where appropriate per dataset or data type) which metadata standard will be used:<br><br>If no, please specify (where appropriate per dataset or data type) which metadata will be created:<br><br>Because the data will be organized in excel form and it is easily understandable. |

| **4. Data Storage & Back-up during the Research Project** | |
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| Where will the data be stored?<br><br>*Consult the interactive KU Leuven storage guide to find the most suitable storage solution for your data.* | ☐ Shared network drive (J-drive)<br>☐ Personal network drive (I-drive)<br>☒ OneDrive (KU Leuven)<br>☐ Sharepoint online<br>☐ Sharepoint on-premis<br>☐ Large Volume Storage<br>☐ Digital Vault<br>☐ Other: |
| How will the data be backed up?<br><br>*WHAT STORAGE AND BACKUP PROCEDURES WILL BE IN PLACE TO PREVENT DATA LOSS?* | ☒ Standard back-up provided by KU Leuven ICTS for my storage solution<br>☐ Personal back-ups I make (specify)<br>☐ Other (specify) |

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| Is there currently sufficient storage & backup capacity during the project? If yes, specify concisely. If no or insufficient storage or backup capacities are available, then explain how this will be taken care of. | ☒ Yes<br>There is sufficient storage and backup in the oneDrive (KU Leuven)<br>☐ No<br><br>If no, please specify: |
| How will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?<br><br>*CLEARLY DESCRIBE THE MEASURES (IN TERMS OF PHYSICAL SECURITY, NETWORK SECURITY, AND SECURITY OF COMPUTER SYSTEMS AND FILES) THAT WILL BE TAKEN TO ENSURE THAT STORED AND TRANSFERRED DATA ARE SAFE.*<br>*Guidance on security for research data* | I believe that KU Leuven provides secure storage system, including central IT solutions and cloud services (OneDrive storage). Therefore, the data will be stored with extra security measures of the KU Leuven university. |
| What are the expected costs for data storage and backup during the research project? How will these costs be covered? | No cost is expected for storing and backup of the data. Because KU Leuven provides students with **free storage space** on OneDrive. |

## 5. Data Preservation after the end of the Research Project

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| Which data will be retained for at least five years (or longer, in agreement with other retention policies that are applicable) after the end of the project? In case some data cannot be preserved, clearly state the reasons for this (e.g. legal or contractual restrictions, storage/budget issues, institutional policies...).<br><br>*Guidance on data preservation* | ☒ All data will be preserved for 10 years according to KU Leuven RDM policy<br>☐ All data will be preserved for 25 years according to CTC recommendations for clinical trials with medicinal products for human use and for clinical experiments on humans<br>☐ Certain data cannot be kept for 10 years (explain) |
| Where will these data be archived (stored and curated for the long-term)?<br><br>*Dedicated data repositories are often the best place to preserve your data. Data not suitable for preservation in a repository can be stored using a KU Leuven storage solution, consult the interactive KU Leuven storage guide.* | ☒ KU Leuven RDR<br>☐ Large Volume Storage (longterm for large volumes)<br>☐ Shared network drive (J-drive)<br>☐ Other (specifiy): |
| What are the expected costs for data preservation during the expected retention period? How will these costs be covered? | |

## 6. Data Sharing and Reuse

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| Will the data (or part of the data) be made available for reuse after/during the project? Please explain per dataset or data type which data will be made available.<br><br>*NOTE THAT 'AVAILABLE' DOES NOT NECESSARILY MEAN THAT THE DATA SET BECOMES OPENLY AVAILABLE, CONDITIONS FOR ACCESS AND USE MAY APPLY. AVAILABILITY IN THIS QUESTION THUS ENTAILS BOTH OPEN & RESTRICTED ACCESS. FOR MORE INFORMATION: HTTPS://WIKI.SURFNET.NL/DISPLAY/STANDARDS/INFO-EU-REPO/#INFOEUREPO-ACCESSRIGHTS* | ☐ Yes, as open data<br>☐ Yes, as embargoed data (temporary restriction)<br>☒ Yes, as restricted data (upon approval, or institutional access only)<br>☐ No (closed access)<br>☐ Other, please specify: |
| If access is restricted, please specify who will be able to access the data and under what conditions. | The data will be accessed upon the request, and approval by KU Leuven promotor |
| Are there any factors that restrict or prevent the sharing of (some of) the data (e.g. as defined in an agreement with a 3rd party, legal restrictions)? Please explain per dataset or data type where appropriate. | ☐ Yes, privacy aspects<br>☐ Yes, intellectual property rights<br>☐ Yes, ethical aspects<br>☐ Yes, aspects of dual use<br>☒ Yes, other<br>☐ No<br><br>If yes, please specify:<br>Data owners want to ascertain correct acknowledgment of data providers by data users, and consider, where appropriate, co-authorship of derived publications |
| Where will the data be made available?<br>If already known, please provide a repository per dataset or data type. | ☐ KU Leuven RDR<br>☒ Other data repository (specify) TreeDivNet database<br>☐ Other (specify) |

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| When will the data be made available? | ☒ Upon publication of research results<br>☐ Specific date (specify)<br>☐ Other (specify) |
| Which data usage licenses are you going to provide? If none, please explain why.<br><br>*A DATA USAGE LICENSE INDICATES WHETHER THE DATA CAN BE REUSED OR NOT AND UNDER WHAT CONDITIONS. IF NO LICENCE IS GRANTED, THE DATA ARE IN A GREY ZONE AND CANNOT BE LEGALLY REUSED. DO NOTE THAT YOU MAY ONLY RELEASE DATA UNDER A LICENCE CHOSEN BY YOURSELF IF IT DOES NOT ALREADY FALL UNDER ANOTHER LICENCE THAT MIGHT PROHIBIT THAT.*<br>*Check the RDR guidance on licences for data and software sources code or consult the License selector tool to help you choose.* | ☒ CC-BY 4.0 (data)<br>☐ Data Transfer Agreement (restricted data)<br>☐ MIT licence (code)<br>☐ GNU GPL-3.0 (code)<br>☐ Other (specify) |
| Do you intend to add a PID/DOI/accession number to your dataset(s)? If already available, please provide it here.<br><br>*INDICATE WHETHER YOU INTEND TO ADD A PERSISTENT AND UNIQUE IDENTIFIER IN ORDER TO IDENTIFY AND RETRIEVE THE DATA.* | ☐ Yes, a PID will be added upon deposit in a data repository<br>☐ My dataset already has a PID<br>☒ No |
| What are the expected costs for data sharing? How will these costs be covered? | There will no cost for data sharing. |

| **7. Responsibilities** | |
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| Who will manage data documentation and metadata during the research project? | PhD Researcher |

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| Who will manage data storage and backup during the research project? | PhD researcher |
| Who will manage data preservation and sharing? | KU Leuven promotor |
| Who will update and implement this DMP? | **PhD researcher** |