M.SC. ON INTEGRATED DRYLANDS MANAGEMENT


Celebrating a Decade of Engagement (2005–2015) for Capacity Development in Dryland Ecosystems
The Joint Master’s Degree (MSc) Programme on Integrated Drylands Management brings together different expertise and scientific resources of the partner institutes to build advanced human capital, and generate and adapt global knowledge for local solutions in drylands. The programme provides young professionals and scientists an international perspective on integrated resources management approaches in drylands and allows them to gain practical experience in different dryland countries. Throughout the programme, a strong emphasis will be placed on multidisciplinary approaches.

The MSc Programme will offer two components:
- A short intensive course
- Field research leading to the development of a Master’s thesis.

The three-week course work will focus on the international dimension of dryland management and a range of research methods. An international team of selected experts from all partners and their networks will provide a balanced mix of lectures, seminars, and field work.

The six-month field and laboratory research will be conducted under the supervision of one of the programme partners. Upon completion of the MSc Programme, students will receive a Master’s Degree from their home university and a certificate from the United Nations University.

Typically, the graduates from the MSc Programme serve in government departments and agencies (e.g. those dealing with agriculture, forestry, natural resources management, and combating desertification), teaching positions in institutions of higher learning, research institutions and doctoral research programmes.

This year the short intensive course will be held at Cold and Arid Regions Environmental and Engineering Research Institute [CAREERI], Lanzhou (China).

**October 12-31, 2015**
**Course work at CAREERI**
- Arrival in Lanzhou, China (Oct 11, 2015)
- Course work at CAREERI: field trips practical exercises, seminars, group work
- Finalization of the research proposal

**November 2015 –October 2016**
**Field research and thesis preparation**
- Data collection and analysis
- Submission of draft thesis to the supervisor

**Late 2016 / Early 2017**
**Graduation**
- Thesis Submission
- Thesis Defense

For more information on CAREERI, visit: [http://www.careeri.cas.cn](http://www.careeri.cas.cn)
In 2015, the intensive short course will be held at CAREERI, China from October 12-31. International experts from all partner organizations and their networks, representing different disciplines in drylands management, will facilitate a mixture of lectures, seminars, laboratory applications and field visits to the arid landscape in China.

The focus of the course work will be on research and practices for combating desertification, and will include inter and multi-disciplinary aspects such as climate change, integrated water and land management, land neutrality and economics aspects. The lectures will further cover a wide range of disciplinary and inter-disciplinary subjects on:

- Degradation and development of arid ecosystems, including mainly aeolian desertification (status, process, mechanism, mitigation, monitoring and assessment, etc.);
- Dryland ecology (soil and water processes in typically dry ecosystems such as steppes, desert steppes, cold deserts, oases, etc.);
- Climate change (in cold and arid regions); and,
- Dryland economics (valuation, management and strategies for investment, monitoring and evaluation).

*Please note that in order to facilitate the visa application process for studying abroad in China, applicants must hold a passport with a validity of more than 6 months.

As part of their application, students need to submit a research proposal and two letters of recommendation, one of which must be from their research supervisor, to the MSc Programme Committee for approval.

The student will need to demonstrate that the proposed field research involves in-situ field work and gives due consideration to community involvement. Partners will provide limited funds for students to carry out field research by involving them in ongoing research programmes.

In addition to a principal supervisor from their home university, the MSc Programme student will have an associate supervisor from the partner institute that will host his or her field research work.
Admission to the programme is based on the following criteria:

- Applicants must already be registered in a Master’s degree programme at one of the Programme partner institutes and have completed their basic course work.
- Applicants registered in a Master’s programme at an accredited university outside the Programme partners may be eligible to apply if they have completed their basic coursework, and can establish a link with a Programme partners for their field research and thesis work which will be undertaken jointly with their current supervisor. Such applicants should contact the interested Programme partner institute directly to explore options and arrangements.
- Applicants must demonstrate a proved competence in relevant research methodologies, laboratory and computer skills.
- Applicants must demonstrate proof of proficiency in English (oral and written).
- Applicants must submit a research proposal of 5 pages, whose priority aligns with that of programme partner who will host the proposed research.
- Working experience in dryland management is desirable.

Tuition fee is US $6000, including costs of course delivery, supervision, and examination. The fee does not include travel costs between the country of the student’s origin and locations of the MSc Programme partners, and costs of living at the MSc Programme partners. Information on local food, accommodation, health insurance, and other logistical matters will be available from MSc Programme partners. The tuition fee will be waived for students who are Fellowship recipients.

A limited number of Fellowships will be provided to qualified candidates from developing countries on a competitive basis. These fellowships will cover the travel costs between the country of origin and IRA, CAREERI, ICARDA, and TU, as needed. Japanese students may only apply for TU fellowships.

During the course work in 2015, CAREERI will house the students with full boarding and lodging in a suitable hotel in Lanzhou, China. During laboratory research work, TU will provide non-Japanese students with allowance for accommodation and meals in Tottori, Japan.

*No financial provisions, logistical assistance or housing facilities will be made available for family members of participants.*
Content Outline of the Three Week Schedule  
(October 12-31st, 2015)

**Dryland Ecosystems: Biology, productivity and economics**

- Soil-water-plant relationship
- Photosynthesis and plant water relations
- Field soil moisture measurement and monitoring
- Computation and analysis of field water balance
- Soil nutrient availability and dynamics
- Water productivity concept and improvements
- Economics of water productivity

*Field visit to an agriculture research station in China (Saturday)*

**Water Management in Dry Areas**

- Irrigation systems (surface and modern)
- Supplemental irrigation: definition, concept and application
- Water harvesting: definition, concept, components and methods
- Water quality and use of marginal-quality water resources (wastewater and saline water) in agriculture
- Salinity development and management in agriculture lands
- Ground water management in dry areas

*Field visit to water harvesting sites (Saturday)*

**Multidisciplinary approach to integrated dryland management**

- Soil and water conservation and land management: Concept, practices and challenges
- Application of GIS and remote sensing in water and land problems solving
- Conservation agriculture in dry lands systems
- Climate change and sustainable drylands management
- Rangeland rehabilitation and monitoring
- Land degradation, desertification and the post-2015 development era (Sustainable Development Goals)

**Course evaluation and departure**
HOW TO APPLY

The following supporting documents* must be submitted together with the completed and signed application form (application form available at http://inweh.unu.edu/mscdrylands)

1. For applicants registered with a Programme partner, a letter of nomination from your supervisor/university where you are registered certifying completion of basic course work;
2. For applicants registered at an accredited university outside the Programme partners, a letter of nomination from your supervisor/university where you are registered certifying completion of basic course work and clarifying the link between your university and one of the MSc Programme partners for joint supervision of research and thesis work;
3. A certified copy of academic transcripts for each institution attended;
4. An original, detailed MSc research proposal of 5 pages clearly outlining the problem statement, literature review, research question, methodology, expected results, workplan, and timetable;
5. Two (2) original supporting letters of reference, one (1) of which must be from your current supervisor;
6. Evidence of English proficiency (e.g., TOEFL score, English certificate, etc.), where English is not your first language.

*Documents which are not originally in English must be accompanied by an official English translation.

The deadline for application submissions is July 15, 2015. Submissions must be postdated by this date. Incomplete applications will not be considered. Please send your fully completed application form and supporting materials by email, fax, or post to:

MSc Programme Committee
United Nations University
Institute for Water, Environment and Health (UNU-INWEH)
204 - 175 Longwood Rd. South
Hamilton, Ontario L8P 0A1 Canada
Fax: +1 905 667 5510
Email: contact.inweh@unu.edu

The Joint Master’s Degree (MSc) Programme on Integrated Drylands Management is offered jointly through the partnership between the United Nations University (UNU), Institut des Régions Arides (IRA), Cold and Arid Regions Environmental and Engineering Research Institute (CAREERI), the International Center for Agricultural Research in the Dry Areas (ICARDA), Institut National Agronomique de Tunisie (INAT) Tottori University (TU), the Global Mechanism (GM) of the United Nations Convention to Combat Desertification (UNCCD), and the International Center for Advanced Mediterranean Agronomic Studies (CIHEAM) — Mediterranean Agronomic Institute — Bari
For inquiry about the programme, please contact persons listed below:

**UNU: Dr. Nidhi Nagabhatla**
United Nations University
Institute for Water, Environment and Health
204 - 175 Longwood Rd. South
Hamilton, Ontario L8P 0A1 Canada
Tel: +1 905 667 5497
Fax: +1 905 667 5510
Email: nidhi.nagabhatla@unu.edu

**IRA: Dr. Mohamed Ouessar**
Institut des Régions Arides
4119 El Fjè Medenine, Tunisie
Tel: +216 75 633 847
Email: ouessar.mohamed@ira.rnrt.tn

**CAREERI: Dr. Wang Tao**
Cold and Arid Environmental and Engineering Research Institute
Chinese Academy of Sciences
Lanzhou 730000
People’s Republic of China
Tel: +86 931 827 5669
Email: wangtao@lzb.ac.cn

**ICARDA: Dr. Theib Oweis**
International Center for Agricultural Research in the Dry Areas
15 Khaled Abu Dalbouh Street
Abdoun Al-Shamali Amman, Jordan
Tel: +962 59 031 20
Email: t.oweis@cgiar.org

**Tottori University: Prof. Atsushi Tsunekawa**
Tottori University
Arid Land Research Center
1390 HamasakaTotttori 680-0001, Japan
Tel: +81 857 21 7036
Email: tsunekawa@alrc.tottori-u.ac.jp

**The Global Mechanism of the UNCCD: Mr. Simone Quatrini**
The Global Mechanism
United Nations Convention to Combat Desertification
UN Campus, Room LEU-1414
Platz der Vereinten Nationen 1 53113 Bonn, Germany
Tel: +49 (0) 228-815-2860
Email: s.quatrini@unccd.it

**CIHEAM – Mediterranean Agronomic Institute – Bari: Dr Nicola Lamaddalena**
Centre International de Hautes Etudes Agronomiques Méditerranéennes
Mediterranean Agronomic Institute – Bari
Via Ceglie 9
70010 Valenzano (Bari), Italy
Tel: +39 080 4606234
Email: lamaddalena@iamb.it
PARTNERS

[Logos of various partners]