

# DesertNet International



## DesertNet International Newsletter n. 3/2017

This quarterly electronic newsletter is intended to inform the scientific community about dryland-relevant research matters. The **deadline** for receipt of material for the next issue is **30.09.2017**. Please send your contributions (1000 characters max, including spaces) to [nrd@uniss.it](mailto:nrd@uniss.it).

### Contents:

1. Information relevant to DesertNet members
2. Researchers' updates
3. Important upcoming events
4. Publications and Special Issues

### 1. Information relevant to DesertNet members

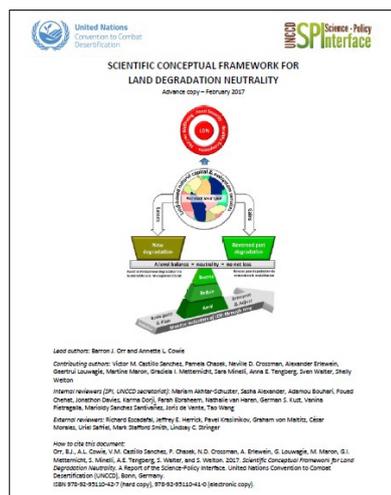
---

**The UNCCD Science-Policy Interface will present the results of its 2<sup>nd</sup> work programme at the UNCCD COP.13 in Ordos, China (6-16 September 2017):**

At UNCCD COP.12 in Ankara, Turkey in October 2015, the Parties requested the Science-Policy Interface (SPI) of the UNCCD also to develop a scientific Conceptual Framework for Land Degradation Neutrality (LDN) to guide countries choosing to pursue LDN in operationalizing this definition. The framework developed by the UNCCD SPI provides a scientifically-sound basis for understanding LDN, and provides practical guidance for pursuing LDN and monitoring progress towards the LDN target as outlined under Sustainable Development Goal 15, specifically its inspirational target 15.3 that strives to achieve a land degradation-neutral world by 2030 (<https://sustainabledevelopment.un.org/>).

The following UNCCD-SPI documents on the scientific Conceptual Framework for LDN are available:

- Scientific Conceptual Framework for Land Degradation Neutrality: <http://www2.unccd.int/publications/scientific-conceptual-framework-land-degradation-neutrality>
- Science-policy brief on Land in Balance: <http://www2.unccd.int/publications/land-balance>



The LDN conceptual framework and other synthesis reports prepared by the UNCCD SPI during the past two years upon request of the Parties, such as the report on sustainable land management for addressing desertification/land degradation and drought, will be presented in Ordos at COP.13 and are available at: <http://www.2.unccd.int/official-documents/cst-13-ordos-china-2017>

Information provided by: DNI Bureau

### Supporting young people to contribute to water resources management



The international non profit organization Young Water Solutions aims at contributing to universal water, sanitation and hygiene (WASH) and water resources management by empowering young leaders, providing them the tools to carry out water projects in their communities.

Eligible people will attend a one-week training workshop in Belgium (Nov. 2017) having their personal and travel costs covered and will be provided with opportunities for funding up to €5000 to implement their projects.

Eligibility: 18 to 30 years old, resident from a mid income country and having a project idea to contribute to solve water problems.

More information at <http://youngwatersolutions.org/#ywf>

Information provided by: María José Marqués. Universidad Autónoma de Madrid

### La Rasgioni - The Reason: a drought court

"Our Land, Our Home, Our Future" is the 2017 World Day to Combat Desertification slogan, set up by the UN in 1994. Various events were undertaken around the world to promote awareness of the interconnections between food security, pollution, water availability, land degradation, loss of biodiversity, poverty, migration and conflicts in the light of climate change.

In Sassari - Sardinia, Italy - the day was celebrated on Friday, June 16, 2017 in the town hall courtyard in an event organized by the *Desertification Research Centre - University of Sassari*,

the *Municipality of Sassari* and *Cinearena: La Rasgioni: a drought's court*. *La Rasgioni* was traditionally used in Sardinia as a public mediation process for reconciling two parties whenever a conflict, often regarding property or livestock, could not be solved in other ways. *La Rasgioni* was used to promote a public debate on a topic and with the intent of sensitizing people to lesser perceived issues such as climate change, consumption and degradation of the land, hidden connections about daily practices and the deterioration of resources. Some twenty people including



representatives from water management institutions and civil society were invited to testify about their experiences on the causes and consequences of drought. A researcher (Giovanna Seddaiu) playing the role of "Omu di mezzu" (Judge), supported by two "Rasgiunanti" (consultants), issued the judgement following the indictments of the "Alligadori" (lawyers) of the two parties.

For more information visit: <http://rasgioni.strikingly.com/>

*Information provided by: Pier Paolo Roggero, Desertification Research Centre - University of Sassari, Italy*

### Internship Programme at FAO



Food and Agriculture Organization  
of the United Nations

The Food and Agriculture Organisation offers different options worldwide for students or young graduates (no more than 30 years old) to learn about what FAO does. Assignments range from 3 to 6 months receiving a monthly stipend.

The selection process is open throughout the year.

More information at:

<http://www.fao.org/employment/opportunities-for-young-talents/internship-programme/en/>

*Information provided by: María José Marqués. Universidad Autónoma de Madrid*

## 2. Researchers' Updates

---

### Jordan can reduce agricultural water use by a third, research finds

Current crop production could be achieved with 30 per cent less use of agricultural water, according to the findings of new research. An analysis on water and food security in Jordan indicated that there is potential for policies that reduce agricultural water needs, while still maintaining current levels of crop production. The research is part of a project funded by the British Council and led by researchers at the University of Oxford's Institute for Science, Innovation and Society, in partnership with the WANA Institute and EcoPeace. The report said that while Jordan has already demonstrated considerable gains in agricultural water productivity, there is potential for further progress. Focusing on ways to increase water productivity in the Kingdom, the research studied how other countries managed to increase their agricultural production without putting too much pressure on water resources, while exploring the potential for these methods to be applied in Jordan and Palestine. While the agriculture sector consumes the majority of water resources, its contribution to gross domestic product is low compared to other sectors. Through the study of the Kingdom's food import trends, the research suggested the possibility of strategically increasing imports of certain crops, without significantly impacting Jordan's food security. Researchers used data on agricultural production and water application to assess, as national averages, water needs per one tonne of food production, looking at 14 key crops including bananas, dates, olives and tomatoes. The analysis also showed that the current targets for treated-wastewater use in agriculture are approaching levels of regional best practices.

Source : <http://www.semide.net/thematicdirs/news/jordan-can-reduce-agricultural-water-use-third-research-finds>

*Information provided by: Gerard Begni, DNI – CSFD/CAC*

### Human interventions in the 20<sup>th</sup> and 21<sup>st</sup> century and water scarcity

Veldkamp et al. (2017) recently published the consequences of human interventions by changes in irrigation and cropland patterns over time and their time-varying impacts on water availability and water scarcity in different river basins. The dominance of different drivers, the sources of change, and the trend in climate change impacts are identified for the first time.

In some regions the population encountered alleviations or move out of water scarcity thanks to human interventions, nevertheless, in most regions, important parts of the population faced aggravated water scarcity conditions. The study also finds that human interventions increase the average duration of water scarcity events affecting a significant share of the global population.

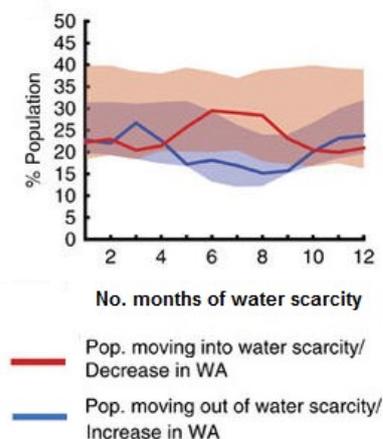
The figure shows the percentage of population experiencing increases/decreases in water availability (WA). Shaded areas represent the interquartile ranges (q25–q75) and the lines the ensemble-median values.

More information at

Nature Communications, 2017; 8: 15697 DOI: 10.1038/ncomms15697

<https://www.nature.com/articles/ncomms15697>

Information provided by: María José Marqués. Universidad Autónoma de Madrid



### The CASCADE Project

The CASCADE Project (ending 30/06/17) has showed (in study sites in Portugal, Spain, Italy, Crete and Cyprus) that cost-effective and efficient management of vulnerable ecosystems has benefitted from long-term field experiments to improve understanding of non-linear ecosystem dynamics and early warning signals. The complexity of soil and plant ecosystems is highlighted particularly in areas prone to forest fires, overgrazing and land abandonment. At all grazed sites we observed a profound difference in species composition, attributed at least in part, to the increase in competitive ability of unpalatable species under increased grazing pressure. New incentives and strategies to prevent land abandonment are required, including social, cultural and economic considerations. Policy makers rely on scientists for information to inform decision-making. Better knowledge sharing is essential, e.g. on the UNCCD's knowledge hub, to make research results more accessible to national governments.

More information at: <http://www.cascade-project.eu/> <http://www.cascadis-project.eu/>

Information provided by: Dr. Nichola Geeson, MEDES Foundation, Italy

### New FAO tool: Using real-time satellite data to track water productivity in agriculture



Organisation des Nations Unies  
pour l'alimentation et l'agriculture

Measuring how efficiently water is used in agriculture, particularly in water-scarce countries, is going hi-tech with the help of a new tool developed by FAO. The WaPOR open-access database has gone live, tapping satellite data to help farmers achieve more reliable agricultural yields and allowing for the optimization of irrigation systems. WaPOR was presented on 20 April 2017 in Rome during a high-level partners meeting for FAO's [Coping with water scarcity in](#)

**agriculture: a global framework for action in a changing climate.** It allows for fine-grained analysis of water utilised through farming systems, generating empirical evidence about how it can be most productively used.

Source : <http://www.semide.net/thematicdirs/news/using-real-time-satellite-data-track-water-productivity-agriculture>

*Information provided by: Gerard Begni, DNI – CSFD/CAC*

### **6<sup>th</sup> Beirut water week**

The 6th Beirut Water Week was organized by the Lebanese Ministry of Energy and Water from 27 to 29 March, 2017, around the theme "After COP22, what governance for the Water Energy Food Nexus". Various sessions and roundtables were tackled: Water Energy Food security; vulnerability of infrastructures, in particular, dams; private sector investments and financial instruments for PPP looking at the experience of the energy sector as well as lessons from public and private banks; role of international organizations in transnational cooperation; technological tools and water information systems for climate change adaptation. For this last theme, EMWIS presented the Mediterranean water knowledge platform and the first lessons on institutional settings necessary for the successful governance of national water information systems. Finally the conclusions of the conference "Hydrodiplomacy and climate change for peace in the Middle East: Case of the Jordan River Basin" held last December at Paris Senate was presented by French Senator Olivier Cadic.

Source : <http://www.emwis.org/documents/meetings/events/bww6>

*Information provided by: Gerard Begni, DNI – CSFD/CAC*

### **COST Action ES1104 Arid Lands Restoration Scientific Fact Sheets: State of the art knowledge in science, successes and case studies in restoration**

COST Action ES1104 has produced a collection of fact sheets composed by Action members and associates. This publication includes the 'COST Action ES1104 White Paper on the Restoration of Drylands'

The 54 fact sheets have been written by Action participants to contribute useful information in a number of topic areas. The fact sheets share the broad topic area of restoration, but are wide ranging, dealing with sites within Europe and Africa. They focus on soils, Sustainable Land Management, revegetation and many other areas. The White Paper sets out 5 key recommendations to policy makers and those involved in combatting desertification and in drylands restoration. Digital copies are available at: <http://gala.gre.ac.uk/17103>

Printed copies are also available at no cost to interested parties by post. Please contact Benz Kotzen – [b.kotzen@gre.ac.uk](mailto:b.kotzen@gre.ac.uk)

*Information provided by: Benz Kotzen, Department of Architecture and Landscape, University of Greenwich*

### **A standardized method to test heat shock effects on plant wilting**

A you tube video shows a protocol to test wheat genotypes for tolerance to heat shock by Gerardo A. Altamura , Università Cattolica del Sacro Cuore - Rome (Italy), Lorenzo Goglia, Università degli studi del Molise - campobasso (Italy) and Agata Rascio, CREA-CI - Foggia (Italy).

The link to the video is: <https://youtu.be/Mz-ps0Qxw90>

*information provided by Agata Rascio, CREA-CI - Foggia*

**In the Mediterranean, no Climate-Smart Agriculture without Climate-Smart Policies**

The latest IPCC report indicates that in the Mediterranean, global warming already has and will have the impacts of reducing agricultural outputs, increasing extreme risks (droughts, heatwaves) and significantly intensifying evapotranspiration. This means, for example, that there is a greater need for water for crops, including in irrigated systems, whereas groundwater levels and river flows are declining in an erratic manner. In order to meet the challenges of mitigation and, especially, climate change adaptation, Mediterranean agriculture needs to undergo a transformation. Actors in the field are already in the process of addressing this challenge. However, it cannot be fully addressed without an adjustment of public agricultural policies

Source : <http://www.semide.net/thematicdirs/news/mediterranean-no-climate-smart-agriculture-without-climate-smart-policies>

*Information provided by: Gerard Begni, DNI – CSFD/CAC*

**Rehabilitation of forests and degraded lands in Iran**

An International Study Tour on the main pilot sites of the “Rehabilitation of Forest Landscape and Degraded Land” project (co-funded by GEF) was jointly organized by the Desert Affairs Bureau of the Forest, Range & Watershed Management Organization, I.R Iran and FAO from 1st to 11 May 2017. The international group of experts visited the project pilot sites in Aran, Bidgol, Se Ghale (South Khorasan province), Rigan, (Kerman province), and Urmia lake (East and West Azerbaijan provinces), meeting local project teams that provided all information regarding activities and achievements on:

- Land rehabilitation activities successfully implemented with local and endemic species, according to best practices and appropriate to local conditions, especially soil salinity in desert and in drying Urmia lake areas.
- Wind erosion and airborne dust monitoring activities by Yazd University;
- Microcredit activities with focus on local income and livelihood alternatives (e.g. tailoring workroom, oil extraction from sesame seeds, plant nursery, gas cooker with liquid petroleum gas, twine weaving of date fibre) and innovative proposals (e.g. polishing & socketing of gemstones, extraction of medicinal plants, small-scale camel breeding) to alleviate pressure on natural resources, especially due to overgrazing;
- Participatory rehabilitation activities supported by local government institutions and communities alike through long-term involvement of key project and government staff.

The study tour successfully shared knowledge, raised awareness of achievements and provided an incentive for international cooperation in the fight against desertification.

*Information provided by: Maurizio Sciortino, Agenzia Nazionale per le Nuove Tecnologie,*

*l'Energia e lo Sviluppo Economico Sostenibile (ENEA), Italy*

**Tunisia: Alarming Water Situation in 2017**

In Tunisia the water crisis will be more acute in 2017. According to Tunisian experts, disturbances and cuts in drinking water supply that occurred in most of the Tunisian regions during the summer 2016, are likely to happen again in summer 2017. They consider that "with 419 m<sup>3</sup> of water per capita / year, Tunisia is in a situation of absolute water shortage, a chronic situation that was accentuated in recent years by climate change effects, increasing needs but also by the deterioration of drinking water supply infrastructures of the national water utility (SONEDE). According to SONED, 42% of its pipes are more than 25 years old and must be replaced.

Source : [http://www.huffpostmaghreb.com/2017/03/17/crise-eau-tunisie\\_n\\_15429266.html](http://www.huffpostmaghreb.com/2017/03/17/crise-eau-tunisie_n_15429266.html)

Information provided by: Gerard Begni, DNI – CSFD/CAC

### An animation developed by the Global Water Initiative (GWI) on how to secure land rights of people affected by dams:

In early 2017, the GWI released an animation that shows how policymakers can work with local communities to protect the rights of people affected by large dams in West Africa. The animation can be viewed at:

<https://www.iied.org/gwi-animation-how-secure-land-rights-people-affected-dams>

Information provided by: DNI Bureau

### 3. Important upcoming events

List of links to next meetings regarding desertification, water conservation and land degradation.

2017		
5-8 Sept	4th International Conference on Research for Development (ICRD) <a href="http://www.icrd.ch">www.icrd.ch</a>	Bern, Switzerland
6-7 Sep	ICSD 2017: 5th International Conference on Sustainable Development <a href="http://www.ecsdev.org/index.php/conference">http://www.ecsdev.org/index.php/conference</a>	Rome, Italy
4-15 Sep	UNCCD COP 13 <a href="http://www2.unccd.int/cop13">http://www2.unccd.int/cop13</a>	Ordos, Inner Mongolia
12-25 Sep	72nd Session of the UN General Assembly (UNGA 72) <a href="http://www.un.org/en/ga/">http://www.un.org/en/ga/</a>	New York, USA
7-11 Oct	International Conf. on Water Management In Arid And Semi-Arid Land (WMAL2017) <a href="http://www.just.edu.jo/Conferences/water-management/Pages/default.aspx">http://www.just.edu.jo/Conferences/water-management/Pages/default.aspx</a>	Amman, Dead Sea, Jordan
9-13 Oct	Forty-fourth Session of the Committee on World Food Security (CFS 44) <a href="http://www.fao.org/cfs/home/plenary/cfs44/en/">http://www.fao.org/cfs/home/plenary/cfs44/en/</a>	Rome, Lazio, Italy
6-9 Nov	6th International Conference on Deserts, Drylands & Desertification (DDD) <a href="http://in.bgu.ac.il/en/desertification/Pages/default.aspx">http://in.bgu.ac.il/en/desertification/Pages/default.aspx</a>	Negev, Israel
20-24 Nov	Pastoralism in the current of global changes: stakes, challenges and prospects <a href="https://p2cg2017.sciencesconf.org/index/authorized?forward-action=authorized&amp;forward-controller=index&amp;lang=en">https://p2cg2017.sciencesconf.org/index/authorized?forward-action=authorized&amp;forward-controller=index&amp;lang=en</a>	Dakar, Senegal
28-30 Nov	Sustainable Intensification <a href="http://www.aab.org.uk/contentok.php?id=196&amp;basket=wwshowconfdets">http://www.aab.org.uk/contentok.php?id=196&amp;basket=wwshowconfdets</a>	Harpden, Herts UK
12-14 Dec	2 <sup>nd</sup> International Conf. Improving Sustainability Concept in Developing Countries <a href="https://www.ierek.com/events/improving-sustainability-concept-developing-countries-2/#introduction">https://www.ierek.com/events/improving-sustainability-concept-developing-countries-2/#introduction</a>	Cairo, Egypt

Information provided by DNI Bureau

#### 4. Publications and Special Issues

---

1. Akhtar-Schuster, M., L. C. Stringer, A. Erlewein, G. Metternicht, S. Minelli, U. Safriel & S. Sommer (2017) Unpacking the concept of land degradation neutrality and addressing its operation through the Rio Conventions. *Journal of Environmental Management*, 195, 4-15.
2. Chillo, O., R. A. Ojeda, V. Capmourteres & M. Anand (2017) Functional diversity loss with increasing livestock grazing intensity in drylands: the mechanisms and their consequences depend on the taxa. *Journal of Applied Ecology*, 54, 986-996.
3. Copeland, S. M., J. B. Bradford, M. C. Duniway & R. M. Schuster (2017) Potential impacts of overlapping land-use and climate in a sensitive dryland: a case study of the Colorado Plateau, USA. *Ecosphere*, 8.
4. Dougill AJ; Whitfield S; Stringer LC; Vincent K; Wood BT; Chinseu EL; Steward P; Mkwambisi DD (2017) Mainstreaming conservation agriculture in Malawi: Knowledge gaps and institutional barriers, *Journal of Environmental Management*, 195, pp.25-34. doi: 10.1016/j.jenvman.2016.09.076
5. Guan, Q. Y., W. Q. Guan, J. Yang, S. L. Zhao, B. T. Pan, L. Wang, N. Song, M. Lu & F. C. Li (2017) Spatial and temporal changes in desertification in the southern region of the Tengger Desert from 1973 to 2009. *Theoretical and Applied Climatology*, 129, 487-502.
6. Henry, D. O., C. E. Cordova, M. Portillo, R. M. Albert, R. DeWitt & A. Emery-Barbier (2017) Blame it on the goats? Desertification in the Near East during the Holocene. *Holocene*, 27, 625-637.
7. Li, J. Y., B. Xu, X. C. Yang, Z. H. Qin, L. N. Zhao, Y. X. Jin, F. Zhao & J. Guo (2017a) Historical grassland desertification changes in the Horqin Sandy Land, Northern China (1985-2013). *Scientific Reports*, 7.
8. Li, Y. Q., Y. P. Chen, X. Y. Wang, Y. Y. Niu & J. Lian (2017c) Improvements in Soil Carbon and Nitrogen Capacities after Shrub Planting to Stabilize Sand Dunes in China's Horqin Sandy Land. *Sustainability*, 9.
9. Pravalie, R., I. Savulescu, C. Patriche, M. Dumitrascu & G. Bandoc (2017) Spatial assessment of land degradation sensitive areas in southwestern Romania using modified MEDALUS method. *Catena*, 153, 114-130.
10. Sietz D; Fleskens L; Stringer LC (2017) Learning from Non-Linear Ecosystem Dynamics Is Vital for Achieving Land Degradation Neutrality, *Land Degradation and Development*, . doi: 10.1002/ldr.2732 [open access – free to download without subscription]
11. Stringer LC; Reed MS; Fleskens L; Thomas RJ; Le QB; Lala-Pritchard T (2017) A New Dryland Development Paradigm Grounded in Empirical Analysis of Dryland Systems Science, *Land Degradation and Development*, . doi: 10.1002/ldr.2716 [open access – free to download without subscription]
12. Symeonakis, E., P. A. Caccetta, J. F. Wallace, E. Arnau-Rosalen, A. Calvo-Cases & S. Koukoulas (2017) Multi-temporal Forest Cover Change and Forest Density Trend Detection in a Mediterranean Environment. *Land Degradation & Development*, 28, 1188-1198.
13. Tong, D. Q., J. X. L. Wang, T. E. Gill, H. Lei & B. Y. Wang (2017) Intensified dust storm activity and Valley fever infection in the southwestern United States. *Geophysical Research Letters*, 44, 4304-4312.

Information provided by: DNI Bureau

#### Special Issue "Arid Land Systems: Sciences and Societies"

A special issue of *Land* (ISSN 2073-445X). [www.mdpi.com/journal/land/special\\_issues/deserts](http://www.mdpi.com/journal/land/special_issues/deserts)

Deadline for manuscript submissions: 1 October 2017

Understanding deserts and drylands is essential as arid landscapes cover >40% of the Earth and are home to two billion people. Today's problematic environment–human interaction needs contemporary knowledge to address dryland complexity. Physical dimensions in arid zones—land systems, climate and hazards, ecology—are linked with social processes that directly impact drylands, such as land management, livelihoods, and development. Challenges require integrated research that identifies systemic drivers across global arid regions. Measurement and monitoring, field

investigation, remote sensing, and data analysis are effective tools to investigate natural dynamics. Equally, inquiry into how policy and practice affect landscape sustainability is key to mitigating detrimental activity in deserts. Exploring relations between socio-economic forces and degradation, agro-pastoral rangeland use, drought and disaster and resource extraction reflect land interactions. Contemporary themes of food security, conflict and conservation are interlinked in arid environments.

This Special Issue unifies desert science, arid environments, and dryland development. Dr. Troy Sternberg, and Dr. Ariell Ahearn from the School of Geography, University of Oxford, Oxford, OX1 3QY, UK, seek papers that identify land dynamics, address system risks and delineate human functions through original research in arid zones. Mixed methodologies that reflect the vital links between social and environmental science in global deserts is welcome. Work that engages with today's topical themes and presents novel analyses is particularly encouraged.

For more information please contact:

Guest Editor

Dr. Troy Sternberg, Dr. Ariell Ahearn

School of Geography, University of Oxford, Oxford, OX1 3QY, UK

Phone: 44(0)1865 285070

e-mail: [troy.sternberg@geog.ox.ac.uk](mailto:troy.sternberg@geog.ox.ac.uk); [ariell.ahearn-ligham@ouce.ox.ac.uk](mailto:ariell.ahearn-ligham@ouce.ox.ac.uk)

*Information provided by: Troy Sternberg, School of Geography, University of Oxford, Oxford, OX1 3QY, UK*

**----- Editorial Board -----**

Mariam Akhtar-Schuster, Hamburg University, Germany; Gérard Begni, Environment & Sustainable Development, CNES, France; María José Marqués Perez, Universidad Autónoma de Madrid, Spain; Lindsay Stringer, University of Leeds, UK; Pietro Arras and Chiara Zanolla, NRD - Sassari University, Italy.

**Secretariat DesertNet International**

University of Hamburg  
Ohnhorststr. 18  
22609 Hamburg, Germany

**Operational Secretariat DesertNet International**

NRD-UNISS University of Sassari  
Viale Italia, 39  
07100, Sassari, Italy

Contact: [office@desertnet-international.org](mailto:office@desertnet-international.org) – [nrd@uniss.it](mailto:nrd@uniss.it)

More information at: [www.desertnet-international.org](http://www.desertnet-international.org)