

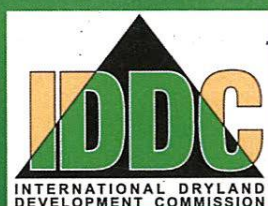
Eleventh International Dryland Development Conference

**Global Climate Change and its Impact on Food & Energy
Security in the Drylands**

18-21 March 2013, Beijing, China



Proceedings



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Eleventh International Dryland Development Conference
Global Climate Change and its Impact on Food & Energy
Security in the Drylands

Organized by
International Dryland Development Commission (IDDC)

Hosted by
The Chinese Academy of Sciences (CAS)
Cold and the Arid Regions Environmental and Engineering Research Institute
(CAREERI), CAS, China

18-21 March 2013, Beijing, China

Proceedings

Editors

Adel El-Beltagy, Wang Tao and Mohan C. Saxena



International Dryland Development Commission

March 2014

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International Dryland Development Commission (IDDC)

The International Dryland Development Commission (IDDC) is an autonomous nongovernmental nonprofit organization established in 1987 by the individuals and institutions interested in and concerned about the sustainable development of dry areas. It is promoting all aspects of dryland studies by fostering cooperation, collaboration and networking between various international, regional and national organizations. One of the important *modus operandi* of the networking of IDDC has been to hold a major scientific conference every two to three years to provide opportunity to participants from around the world to exchange research results and experiences in dryland development and combating desertification. In pursuance of this objective the IDDC has organized in the past following ten international conferences held in countries that have large dryland areas:

1. First International Conference on Desert Development: *Application of Science and Technology for Desert Development*, Cairo, Egypt, 1978.
2. Second International Conference on Desert Development: *Desert Development Systems – Technologies for Desert Agriculture, Energy and Communities*, Cairo, Egypt, 1987.
3. Third International Conference on Desert Development, Beijing, China, 1990
4. Fourth International Conference on Desert Development: *Sustainable Development for our Common Future*, Mexico City, Mexico, 1993.
5. Fifth International Conference on Desert Development: *Desert Development -The Endless Frontier*, Lubbock, Texas, 1996.
6. Sixth International Dryland Development Conference: *Desert Development: Challenges in the New Millennium*, Cairo, Egypt, 1999.
7. Seventh International Dryland Development Conference: *Sustainable Development and Management of Drylands in the 21st Century*, Tehran, Iran, 2003.
8. Eighth International Dryland Development Conference: *Human and Nature working together for Sustainable Development of Drylands*, Beijing, China, 2006.
9. Ninth International Conference on Dryland Development: *Sustainable Development in the Drylands – Meeting the Challenge of Global Climate Change*, Bibliotheca Alexandrina, Alexandria, Egypt, 2008.
10. Tenth International Conference on Development of Drylands - *Meeting the Challenge of Sustainable Development in Drylands under Changing Climate - Moving from Global to Local*, Cairo, Egypt, 2010.

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Table of contents

| | |
|--|------|
| Foreword | xiii |
| I. Inaugural Session Presentations | 1 |
| Opening Statement | |
| Adel El-Beltagy, Chair of International Dryland Development Commission (IDDC) | 3 |
| Statement by: | |
| • Tao Wang , President of Lanzhou Branch of the Chinese Academy of Sciences (CAS) | 4 |
| • Fawzi Al-Sheyab , President of AARINENA | 4 |
| • Atsushi Tsunekawa , Director of ALRC, Tottori University, Japan | 5 |
| • Wang Wenbiao , Chairman of Elion Foundation | 7 |
| • Stephen G. Wells , Director of Desert Research Institute (DRI) | 8 |
| • Mahmoud Solh , Director General of ICARDA | 9 |
| • Zafar Adeel , Director of UNU-INWEH | 10 |
| Inaugural Address | |
| Prof. Bai Chunli, President of Chinese Academy of Sciences (CAS) | 11 |
| II. Plenary Session Presentations | 13 |
| Plenary Session 1: | 15 |
| People-centered sustainable dry-area food and energy security in the face of climate change | |
| Adel El-Beltagy | 15 |
| Water, food and energy security in drylands: Challenges triggered by global changes | |
| Zafar Adeel | 29 |
| Climate change and food security in the Arab region | |
| Ayman F. Abou Hadid | 37 |
| Renewable energy for rural development in drylands | |
| Atsushi Tsunekawa | 49 |
| Plenary Session 2: | 59 |
| Increasing productivity and building resilience in agriculture systems: a critical investment for better livelihoods and food security in dry areas | |
| Mahmoud Solh | 59 |
| Human food: climate change mitigation and adaptation – extended abstract | |
| Rachel C. Taylor, R. Gareth Wyn Jones, H. Omed and G. Edwards Jones | 69 |
| What can the arid agriculture movement learn from the success of urban agriculture? Extended abstract | |
| Nicola Kerslake, Steve Wells and Navin Twarakavi | 71 |

| | |
|--|-----|
| Plenary Session 3: | 73 |
| Promoting sustainable use and management of water and energy resources under global climate change in dry areas | 73 |
| <i>Adli Bishay</i> | |
| Sustainable land management: an ecological and economic imperative | 83 |
| <i>Victor R. Squires</i> | |
| Producing more food with less water in the dry areas: Challenges and opportunities | 94 |
| <i>Theib Y. Oweis</i> | |
| Process of aeolian desertification and its control in Northern China | 103 |
| <i>Tao Wang, Xue Xian, and Yan Changzhen</i> | |
| Plenary Session 4: | 111 |
| Sustainable dryland cropping systems to enable bioenergy security in the United States | 111 |
| <i>Brenton Sharratt and Jeffrey Steiner</i> | |
| Drylands and food security in changing climates: an analytical study of Pakistan | 122 |
| <i>Kausar Abdulla Malik and Uzma Hanif</i> | |
| Plenary Session 5: | 133 |
| Adoption of reduced tillage in dryland regions of northern Iraq and Syria | 133 |
| <i>Stephen Loss, David Feindel, Atef Haddad, Yaseen Khalil, Abdulsattar Alrijabo and Colin Piggin</i> | |
| Management of drylands in Kyrgyzstan | 139 |
| <i>Dzamin Akimaliev</i> | |
| Use of biotechnological tools and novel genetic resources for enhancing resilience of major dryland crops to climate change in dry areas. | 143 |
| <i>Michael Baum, Aladdin Hamwieh, Sripada Udupa and Tadesse Wuletau</i> | |
| CleanStar Mozambique: a commercial model for increasing food and energy security by integrating smallholder-based farming, bioprocessing, and retail distribution of food and clean energy products – extended abstract | 155 |
| <i>Sagun Saxena and Bill Rustrick</i> | |
| Plenary Session 6 (Special Session on <i>Dryland Systems</i>): | 157 |
| Integrated agricultural production systems for improved food security and livelihoods in dry areas | 157 |
| <i>William Payne and Brian Howard</i> | |
| Integrated agricultural production systems for improved food security and livelihoods in North Africa and West Asia – extended abstract | 168 |
| <i>Ali Nefzaoui, Rachid Serraj, Maarten van Ginkel, and William Payne</i> | |
| Drivers and major changes in agricultural production systems in drylands of South Asia: assessing implications for key environmental indicators and research needs | 169 |
| <i>Amare Hailelassie, Peter Craufurd, Michael Blummel, Murali Krishna Gumma, K. Palanisami, and V. NageswaraRao</i> | |
| Vulnerability and agricultural intensification in drylands - an alternative framework for development research – extended abstract | 185 |
| <i>Jeffrey Worden, Lance Robinson, Sabrina Chesterman, and Polly Ericksen</i> | |

| | |
|--|-----|
| Sampling the vulnerability reduction – sustainable intensification continuum: a West African paradigm for selection of <i>Dryland Systems</i> site | 186 |
| <i>P.C.S. Traore, N. Lamien, A.A. Ayantunde, J. Bayala, A. Kalinganire, J.N. Binam, E. Carey, A. Emechebe, R. Namara, J.E. Tondoh, R. Vodouhe</i> | |
| Dryland Systems' action research agenda to mitigate problems of drylands in Central Asia and the Caucasus – <i>extended abstract</i> | 205 |
| <i>J. Mohan Reddy and Jozef Turok</i> | 207 |
| I. Concurrent Session Presentations | |
| Theme 1, 2 &3: Food and energy security in drylands – Challenges triggered by global changes; Role of dryland agriculture in mitigating strategies for climate change; Global climate change and its impact on different dryland ecosystems | 209 |
| Halophytic plants (environmentally smart crops) for forage, biofuel production and soil bioremediation | 209 |
| <i>Medhat Mekhail Tawfik, Maha M. Tawfeek, E. M. Abd El Lateef, A. T. Thaloath, A. Bakry, and T. A. Elewa</i> | |
| Drought assessment in a typical rainfed agricultural region of Inner-Mongolia, China | 219 |
| <i>Rui Li, Atsushi Tsunekawa, and Mitsuru Tsubo</i> | |
| Enhanced tropospheric ozone under global climate change situation and its effects on yield and some fatty acids in Thai soybean in Northern Thailand | 234 |
| <i>Kanita Thanacharoenchanaphas and Orose Rugchati</i> | |
| Development of management practices to address wheat vulnerability to climate change in North Delta | 242 |
| <i>Tahany Nor El Din, Rashad Abou El Enein and Samiha Ouda</i> | |
| Vulnerability of cotton crop to climate change in salt affected soil | 253 |
| <i>Samiha Ouda, Tahany Nor el Din, Rashad Abou El enein, and Hesham Abd El-Baky</i> | |
| Climate change effects on winter wheat yields in cold rainfed region of Iran | 260 |
| <i>Abdoali Ghaffari and E. De Pauw</i> | |
| Assessment of ecosystem sensitivity and adaptation strategies to desertification and climate change in Lebanon | 264 |
| <i>Mouin Hamze, Cosimo Lacirignola, Talal Darwish, Nicola Lamaddalena, Amin Shaban, Pandi Zdruli, Ghaleb Faour, Roula Khadra, Rita El-Hajj and Carla Khater</i> | |
| Some indicators of the effect of global warming on olive tree flowering in south Tunisia | 278 |
| <i>Mounir Abichou, Herminia Garcia-Mozo, Ali Ben Dhiab; Monji Msallem, Eugenio Domínguez-Vilches, and Carmen Galan</i> | |
| Vulnerability of Crop to climate change: A case study of elevated ozone and its impacts on leaf morphology in Thai soybean | 284 |
| <i>Anusara Phosri, Chirdsak Thapyai, Orose Rugchati, and KanitaThanacharoenchanaphas</i> | |
| Air pollutants and waste mitigation with chicken-egg farm management in Northern Thailand under global warming situation | 291 |
| <i>Narinthip Fongmul and Kanita Thanacharoenchanaphas</i> | |

| | |
|--|-----|
| Theme 4: Sustainable use of water resources in dry areas | 297 |
| Modeling evapotranspiration of applied water in Egypt Delta | 297 |
| <i>Atef Swelam, Richard Snyder, and Morteza Orang</i> | |
| Numerical simulation of groundwater at sedimentary field in the Liudaogou Catchment on the northern Loess Plateau, China | 318 |
| <i>Jinbai Huang, Jinfeng Huang, Osamu Hinokidani, Longbin Lu, and Hiroshi Yasda</i> | |
| Impact of use of drainage on water delivery performance in irrigation networks at the lower Nile Delta | 327 |
| <i>Khater A. El-Hamed, Y. Kitamura, K. Shimizu, and Waleed H. Abou El Hassan</i> | |
| A study on agricultural land and water management under decrease of irrigation water supply - a case study of the lower Ili River basin, Kazakhstan | 335 |
| <i>Toshihiko Anzai, Katsuyuki Shimizu, Yoshinobu Kitamura, and Jumpei Kubota</i> | |
| Managing water resources under climatic change in the dry areas of North Africa and the Middle East | 346 |
| <i>Caroline King and Fawzi Karajeh</i> | |
| Effect of irrigation frequency on yield and quality of melon under open field conditions in Minqin oasis | 359 |
| <i>Huang Cuihua, Xue Xian, Zong Li, You Quangang, Wang Tao, and Tedeschi Anna</i> | |
| Seasonal water uptake for halophytic shrubs in northwest China salinity-affected area: an isotopic investigation | 367 |
| <i>Lin Zhu, Shu Xin Zheng and Xing Xu</i> | |
| Yield and water use efficiency of barley under different irrigation scheduling methods in southern Tunisia | 382 |
| <i>Masayasu Okazaki, Kamel Nagaz, Haruyuki Fujimaki, and Fathia El-Mokh</i> | |
| Improved on-farm irrigation management for olive growing | 399 |
| <i>N. El Jouni, L. Sikaoui, H. Boulal, M. Karrou and V. Nangia</i> | |
| Stress irrigation in fruit growing in the semi-arid region of Dobrogea, Romania | 407 |
| <i>Cristian Paltineanu and Leinar Septar</i> | |
| Coping with desertification in Iran: lessons and constraints | 419 |
| <i>Hossein Dehghanisani, Hanieh Kosari and Farahnaz Sohrab</i> | |
| The role of on-farm management on sustainable irrigated agriculture in arid and semiarid region - A case study in Karkheh River Basin - Iran | 427 |
| <i>Hossein Dehghanisani, Mansour Moayeri, Theib Oweis, and Mehdi Akbari</i> | |
| Theme 5: Desertification process and control; Sustainable land use and management in dry areas | 439 |
| Land degradation potential by soil erosion under different land uses in the dry area of Tarim Basin | 439 |
| <i>Xinhu Li, Guanglong Feng, C. Zhao, and Zehao Zheng</i> | |
| Escalation of wind erosion from oilseed bioenergy crops grown in the USA Pacific Northwest | 450 |
| <i>B.S. Sharratt and W.F. Schillinger</i> | |
| Spatial variability of soil seed banks in active sand dune systems in semi-arid region, China | 460 |
| <i>Chunping Miao, Xuehua Li, and Deming Jiang</i> | |

| | |
|--|-----|
| Comparison of the methods of extracting information on the wetland in inland river basin of Northwest China: a case study in Zhangye city | 470 |
| <i>Yun-hai Chen, Gui-sheng Wang, Hao-xu Li, Xue-qiang Wang, and Hong Zhao</i> | |
| Can no-till cropping alleviate water and heat stress? | 478 |
| <i>Hong Wang, Y. Gan, K. Brandt, Y. He, X. Qin, and Q. Cai</i> | |
| Intercropping in castor (<i>Ricinus communis</i>) in drylands | 492 |
| <i>S.K. Sharma and S.B.Mittal</i> | |
| Interventions for better livelihoods and readiness of irrigated farming communities under climate change | 498 |
| <i>Fawzi Karajeh, Sami Sabry, and Abdul-Aziz A. Hashim</i> | |
| Unlocking the poverty-environment dilemma in China's Loess Plateau: a small watershed case study | 507 |
| <i>Dongwei Zhang, Yongping Wei, Tianwen Guo, Bo Dong, and Xucheng Zhang</i> | |
| Introducing Chinese rainfed agricultural system to Kenya: A promising strategy to cope with climate change and food security | 520 |
| <i>F. Mo, H. Zhou, J.Y. Wang, S.N. Nguluu, H.J. Zhang, T. Yang, H. L. Deng, S. Wu, A. Batool, E. Njiru, M.A.S. Abdel-monem, F.M. Li and Y.C. Xiong</i> | |
| Advance farming in the desert - the Israeli experience | 535 |
| <i>Raanan Katzir</i> | |
| Soil microbial attributes along a cropland degradation gradient in Horqin sandy land, northern China | 542 |
| <i>Shao-Kun Wang, Xue-Yong Zhao, Xiao-An Zuo, Yu-Qiang Li, Jie Lian, Wen-Da Huang, and Natalie M. West</i> | |
| Removal of salinity from soil surface by a water-saving leaching method | 552 |
| <i>K. Inosako, N.Takeshita, and T. Saito</i> | |
| Theme 6: Sustainable range management and forage production under global climate change | 565 |
| Range management options for sustainable improvement of fodder and livestock production in the dry areas | 565 |
| <i>A.E. Osman</i> | |
| Potential of salt-tolerant forage grasses as animal feeds in salt affected lands in Sinai, Egypt | 578 |
| <i>H. M. El Shaer, A. Dakheel, and A.I. Abd El Hameed</i> | |
| Evapotranspiration and its source components change under experimental warming in alpine meadow ecosystem of Qinghai-Tibet Plateau | 585 |
| <i>Fei Peng, Quanggang You, Xian Xue, and Tao Wang</i> | |
| Management and utilization of saline water and salt-affected arid land resources by raising salt tolerant grasses and trees | 598 |
| <i>Muhammad Saqib, Ghulam Abbas, Javaid Akhtar, Ghulam Murtaza, and M. Anwar ul Haq</i> | |
| Assessment of sexual vs. asexual reproduction adaptation in <i>Prosopis cineraria</i> in the United Arab Emirates using pod seed observations | 608 |
| <i>David J. Gallacher and Ali A. M. El-Keblawy</i> | |

- Relationship between the growth of *Tamarix ramosissima* and morphology of nebkhas in oasis-desert ecotones** 616
Xue-qin Wang Fan Yang, Dongliang Yang, and Xianfeng Chen
- The factors affecting the estimation of pasture biomass using non-destructive methods in the forest-steppe zone of Mongolia** 629
Baasanjalbuu Bayaraa, Zolzaya Sed-Ochir, Chuluunbat Gantumur, Bayarmaa Sugirjargal and Seishi Yamasaki
- Preparation and utilization of supplemental feeds during cold seasons at herders' household in Mongolia** 636
Yasuo Kamiya and Seishi Yamasaki
- Difference in the rate of fermentation of brewers' grain silage caused by mixing rations of wheat bran or wheat screenings in Mongolia** 642
Seishi Yamasaki, Baasanjalbuu Bayaraa, Zolzaya Sed-Ochir, Yasuo Kamiya and Kazuhisa Nonaka
- Theme 7: Application of new technologies for the improvement of stress (drought, heat, cold and salinity) resistance of crops and conventional and breeding for dry areas** 649
- Evaluation of Kabuli type chickpeas under stress and non-stress conditions of Iran** 649
Sayyed Hossain Sabaghpour, Rajinder Malhotra, and Yedollah Feayed
- Study on effect of different moisture treatments on yield and some agronomic characters in lentil (*Lens culinaris* L.) genotypes** 654
Sayyed Hossain Sabaghpour, Hossain Khardmend, and Amin Farnia
- Influence of water stress on growth, yield and quality of potato (*Solanum tuberosum* L.) genotypes under the arid climatic conditions of Central Asia** 658
Carlo Carli, Firuz Yuldashev, and Durbek Khalikov
- Effects of over-expressing of rice glycogenin-like protein (*OsGGT1*) on tolerance to complete submergence and drought stress – extended abstract** 677
Amin Elsadig Eltayeb, Mohamed Elsadig Eltayeb Habora, Hisashi Tsujimoto, and Kiyoshi Tanaka
- Genes involved in cross-tolerance to drought and salinity in *Leymus*: Identification and expression analysis in wheat-*Leymus* chromosome addition lines - extended abstract** 678
Mohamed Elsadig Eltayeb Habora, Amin Elsadig Eltayeb, Hisashi Tsujimoto, and Kiyoshi Tanaka
- Over-expression of the rice monogalactosyldiacylglycerol synthase gene (*OsMGD*) enhances tolerance to multiple stresses in tobacco – expanded abstract** 679
Lina Yin, Shiwen Wang, and Kiyoshi Tanaka
- Cancellation of vernalization and promotion of early flowering in wheat using chromosomes added from the wild relative *Leymus racemosus*** 680
Yasir Serag Alnor Mohammed, Amin Elsadig Eltayeb, and Hisashi Tsujimoto
- Towards producing perennial wheat using wild species for breeding in arid land** 688
Seong-Woo Cho, Amin Elsadig Eltayeb, and Hisashi Tsujimoto
- Chromosome elimination by super-wide hybridization between wheat or oat and pearl millet: CENH3 dynamics in the hybrid embryo cells** 692
Takayoshi Ishii and Hisashi Tsujimoto

| | |
|--|-----|
| Growth responses and inorganic ion regulation of four bermudagrass (<i>Cynodon</i> spp.) cultivars under salinity stress | 699 |
| <i>Ran Xu and Hideyasu Fujiyama</i> | |
| Alfalfa is sensitive to salinity but tolerant to sodicity | 710 |
| <i>Emi Kaburagi and Hideyasu Fujiyama</i> | |
| Evaluation of water status indicators in olive trees under different water regimes | 719 |
| <i>Kanako Nitta, Koji Inosako, Mladen Todorovic, and Tadaomi Saito</i> | |
| Modeling stomatal conductance of durum wheat (<i>Triticum durum</i>) in drylands by field experiments | 731 |
| <i>Asa Kitagawa, Koji Inosako and Mohammed Karrou</i> | |
| Theme 8: Arid lands communities, their indigenous knowledge and heritage, and socio-economic studies | 743 |
| Economic evaluation of regional water supply policy in Zhangye, China | 743 |
| <i>Ryoma Fujioka</i> | |
| Farm level rainwater harvesting for dryland agriculture in India: Performance assessment and institutional and policy needs | 754 |
| <i>Shalander Kumar, B. Venkateswarlu, Khem Chand and M. M. Roy</i> | |
| Assessment of the agricultural productivity of a traditional agricultural system in Tunisia | 766 |
| <i>Hikaru Takatsu, Yoshinobu Kitamura, Mohamed Ouessar, and Katsuyuki Shimizu</i> | |
| Managing irrigated activities under water scarcity: Impact on farmers' revenue and the sustainable use of the water resources | 773 |
| <i>Fraj Chemak, Meriem Oueslati, and Marwa Miri</i> | |
| Experiences of governments/JICA/Tottori-University tripartite cooperation in capacity development on dry land agricultural technologies | 784 |
| <i>Hajime Nabeta</i> | |
| Contribution of livestock to the livelihood of local communities in dry coastal zone of Western Desert in Egypt | 794 |
| <i>A.M. Aboulnaga, V.Alary, M. Osman and J.V. Tourand</i> | |
| Sustainable resource management in dryland Arabia | 803 |
| <i>Ahmed Abdulrazzaq Nasser Al-Aghbari and Loo-See Beh</i> | |
| Effects of dust events on daily outpatient counts | 807 |
| <i>Haosheng Mu, Kazunari Onishi, Shinji Otani, Takenobu Hosoda, Mikizo Okamoto, and Youichi Kurozawa</i> | |
| IV. Panel Discussion | 811 |
| V. Concluding Session | 821 |
| • Recommendations | 827 |
| • Beyond 2015 – Beijing Statement | 828 |
| VI. Appendix | 829 |
| • List of Participants | 831 |
| • Committees | 839 |

Foreword

The Intergovernmental Panel on Climate Change (IPCC), using different models, has reaffirmed that the climate change is occurring globally and it is going to have serious impacts on agriculture and natural resources in the dry areas, particularly in the West Asia and North Africa region. Much of the predictions of impacts have, however, been based on global assessment. It is well known that the global assessment glosses over the regional and the regional over the local variations in the magnitude and direction of impacts. Precise information on local and regional levels is, therefore, crucial for developing appropriate strategies to cope with the adverse impacts through required adaptation and mitigation measures.

Recognizing the limitation of global assessment of climate changes for devising appropriate coping measures, the International Dryland Development Commission organized its tenth international conference – *Moving from Global to Local* – in Cairo, Egypt in 2010, providing a platform for sharing and analyzing information on the need and methods and some results of moving the impact assessment from global to local. The deliberations also highlighted the urgency of taking action to tackle the problems associated with the adverse impacts of rising temperatures, changing cropping seasons, increasing variability in the magnitude and distribution of rainfall, and, in some parts, increase in the level of sea water, on food production and food security in the dry areas. Rise in the food prices, partly because of diversion of food crops to produce biofuel – as a strategy to reduce the use of fossil fuel for mitigating climate change – and the prices of energy is further accentuating food insecurity in the dry areas and adversely affecting the livelihood of the dryland communities. Hence, there is an urgent need for more precise assessment of adverse impacts of climate change on the nexus of food and energy security and for developing interventions to cope with the problem. Intensive knowledge is required to increase the adaptive capacity and minimize vulnerability in the dry areas. It is in this background that the International Dryland Development Commission organized this Eleventh International Conference on Dryland Development in Beijing, China, under the title *Global Climate Change and its Impact on Food and Energy Security in the Dry areas*.

A total of 26 plenary and more than 100 oral and poster presentations were made by scientists, development experts, and policy makers from different countries and organizations on eight themes relevant to the subject. A panel of experts conducted in depth analysis and led general discussion on the strategies that need to be developed for increasing food and energy security in the dry areas. Based on these deliberations, the participants developed a *Beijing Declaration* to inform all stakeholders about the urgency and direction of the course of action. This volume contains most of the information emanating from these deliberations. We hope that it will be of interest to the scientific community, development agencies, policy makers and other stakeholders interested in the food and energy security and the sustainable development of drylands in the face of changing climates.

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