

Listening to many voices when planning for adaptation of agriculture to climate change

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Pressures on land and water resources are expected to intensify

Climate change comes in conjunction other pressures for sustainable development

1 key issue can adaptation be improved by listening to many voices?

3 assertions

- Understanding the benefits of cooperation is essential for improving adaptation plans
- Understanding and reducing vulnerability demands multiple actors. Adaptation plans depend on context
- Adaptation and vulnerability reduction are human rights issues, therefore they should be linked to development plans

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Too hot



Too dry

Adaptation depends on socio-economic and environmental determinants



Infrastructure and technical solutions, experience in planning under hydrologic variability

Citizen awareness of importance of drought issues and environmental problems

Rural areas with experience in uncertainty, taking flexible solutions, multiple

Environmental awareness of importance of nature based solutions



Research article

Defining adaptation measures collaboratively: A participatory approach in the Doñana socio-ecological system, Spain

Lucia De Stefano ^{a,*}, Nuria Hernández-Mora ^b, Ana Iglesias

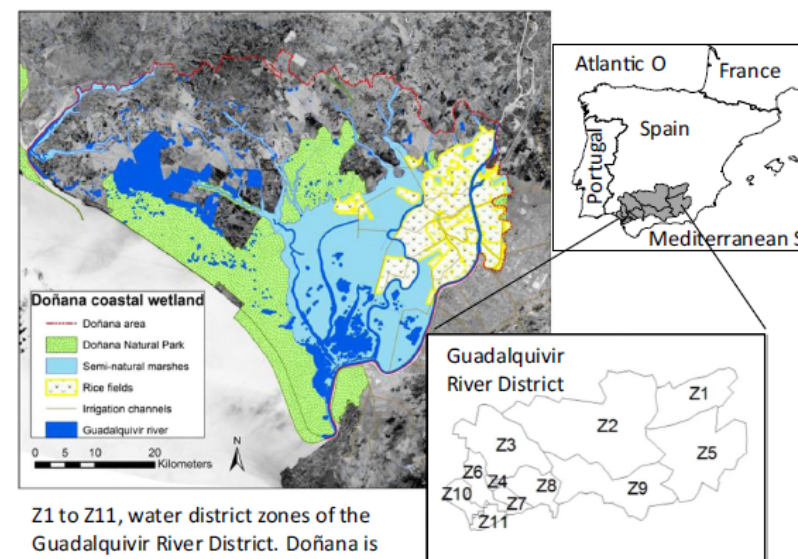
^a Universidad Complutense de Madrid, Facultad de Ciencias Geológicas, c/ José Antonio Nováis, 12, 28040, Madrid, Spain

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Water Resour Manage

DOI 10.1007/s11269-015-0995-x



Towards Adaptation to Climate Change in the Coastal Wetlands of Doñana, Spain

Ana Iglesias¹ • Berta Sánchez¹ • Luis Garrote² • Iván López³

Z1 to Z11, water district zones of the Guadalquivir River District. Doñana is located in Z10 and Z11

Fig. 1 Geographical location of the Doñana coastal wetland and the Guadalquivir River Basin District

Although it is clearly demonstrated that cooperation is essential, it remains a challenge



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El efecto de la sequía depende de la vulnerabilidad social ...





JUN 26 2005

From climate change impacts to the development of adaptation strategies: Challenges for agriculture in Europe

Ana Iglesias • Sonia Quiroga • Marta Moneo •
Luis Garrote





Source:

www.earthkam.ucsd.edu

- West Azarbayjan
- East Azarbayjan
- Kordestan
- 3 groups, mixed background (UN, University, Government – water, agriculture, environment – state government

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- Vulnerability to climate change increases inequalities
- Vulnerability to climate change is a challenge to SDGs and environmental justice



Article | OPEN

Drought and child mortality: a meta-analysis of small-scale surveys from Ethiopia

Tefera Darge Delbiso¹, Chiara Altare, Jose Manuel Rodriguez-Llanes, Shannon Doocy & Debarati Guha-Sapir

Scientific Reports **7**, Article number: 2212 (2017)

doi:10.1038/s41598-017-02271-5

Epidemiology

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Planning linked
to development
MDGs

Measures
in response to
local and
sectoral risks

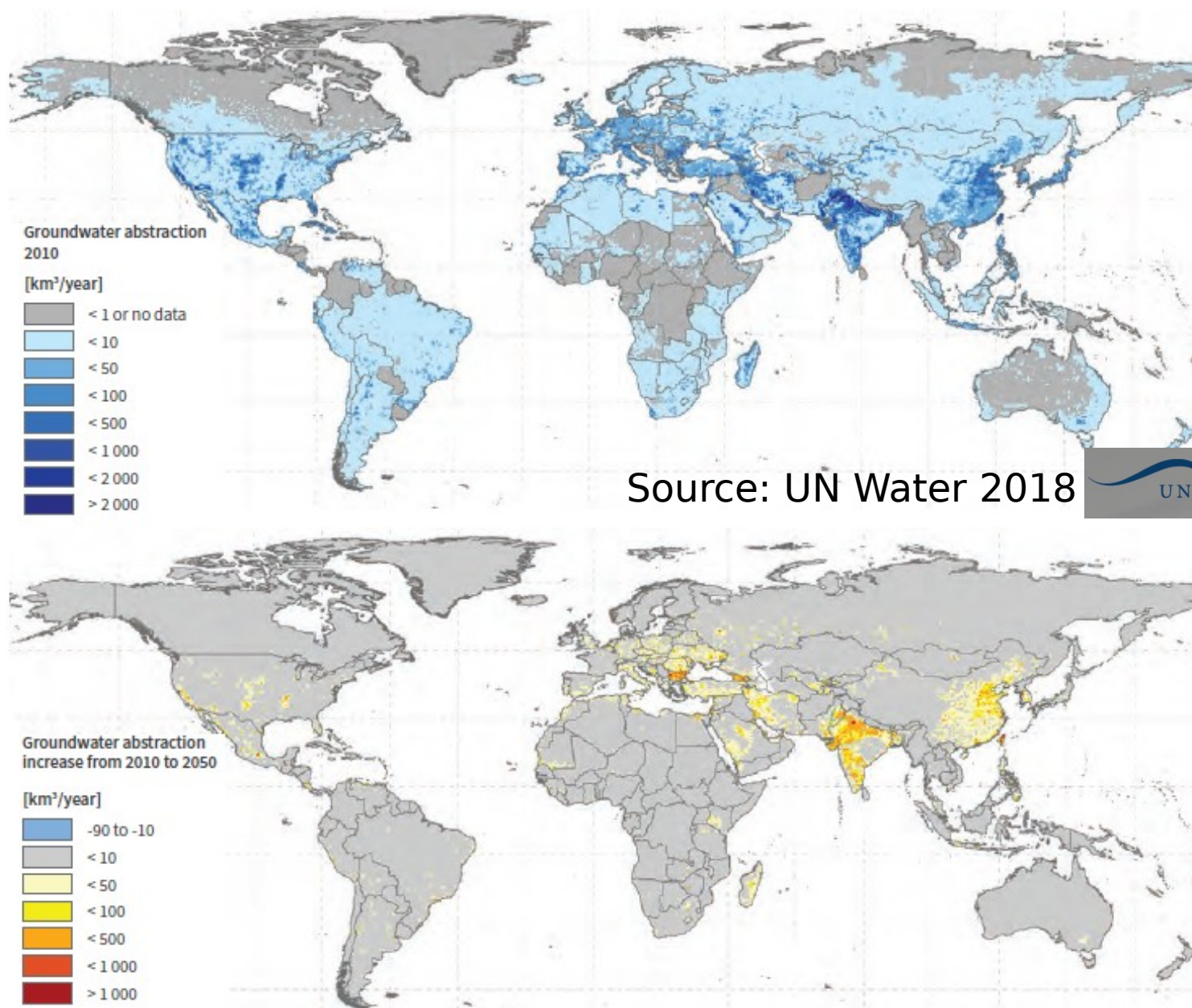
Can we be optimistic?



Linking knowledge into action

- linking water and food policy to development policy
- expansion of interests beyond single uses and narrowly defined objectives

Figure 3 Groundwater abstractions in 2010 (upper figure) and increases in groundwater abstraction by 2050 above 2010 levels (lower figure) based on the *middle-of-the-road* scenario*



Source: UN Water 2018



China: The sponge city, reuse of grey water



Source: UN Water 2018

Teaming up
to decrease vulnerability

Environ-
ment

Technolog
y

Society

Economi
c

Leave no one behind
(UN)

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Thank you!