



Fundación
Marcelino Botín

OBSERVATORIO DEL AGUA
WATER OBSERVATORY



2010 WORLD WATER WEEK

**WORKSHOP 5: MANGEMENT OF GROUNDWAATER ABSTRACTION
AND POLLUTION**

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THE INCREASING ROLE OF GROUNDWATER INTENSIVE DEVELOPMENT IN GLOBAL WATER POLICY



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1. AIM OF THIS PRESENTATION

Obtain reliable information:

“Groundwater still out of sight but less out of mind”

(A. Skinner, IAH General Secretary 2008)



2. The 1998 UNESCO Conference: *Water a looming crisis*

“During more than ten years I have tried – without success-to find reliable information on medium size aquifers (more than 500 km²) where intensive GW development had been an economic and/or social disaster”

**The response was – and still seems to be-
STONY SILENCE (Marc de Villiers, 2000,
Water, p.283)**



3. THE CALIFORNIA WATER RESOURCES POLICY AND THE 2004 DEAD SEA CONFERENCE

There I stated:

“I am not enthusiastic on the California water resources policy. The farmers lobby is so powerful as the National Rifle Association”

Someone from the audience said:

“They are the same”

Everybody laughed



4. THE EDITORIAL FOR THE 2005 ASCE JOURNAL

Probably because of this anecdote the editor of the ASCE journal on *Water Resources Planning and Management* asked me to Write an editorial on groundwater policy.

This is what I am now going to comment on and its follow up.

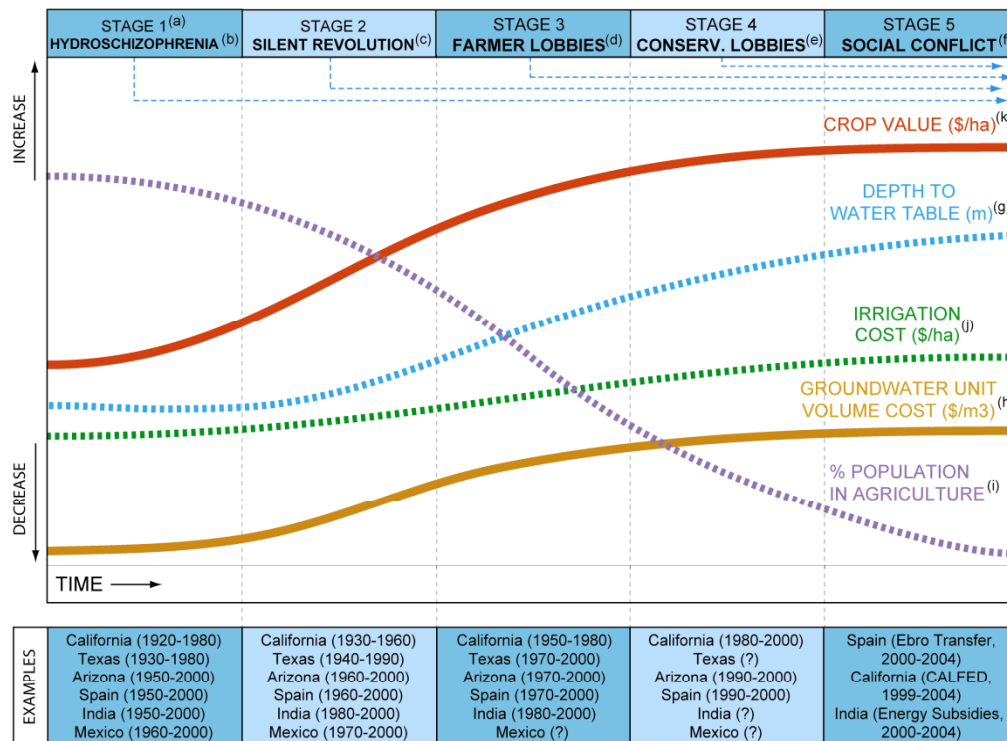


5. THE FIVE USUAL STAGES IN GROUNDWATER DEVELOPMENT(I)

- **That was a rather long editorial (four pages)**
- **The main issues are represented in the following graph, which I will explain briefly**

5.THE FIVE USUAL STAGES IN GROUNDWATER DEVELOPMENT(II)

ROUGH (GROUND)WATER POLICY TRENDS IN ARID AND SEMI-ARID COUNTRIES





5. THE FIVE USUAL STAGES IN GROUNDWATER DEVELOPMENT(III)

- **THE FIVE STAGES ARE:**
 - **Hydroschizophrenia**
 - **Groundwater silent revolution**
 - **Formation of powerful farmers' lobbies, asking for surface water transfers**
 - **Formation of also powerful conservation lobbies**
 - **Social and political confrontations**

5. THE FIVE USUAL STAGES IN GROUNDWATER DEVELOPMENT(IV) *CAUSES OF THE SILENT REVOLUTION*



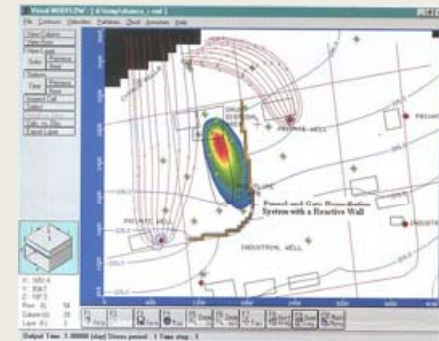
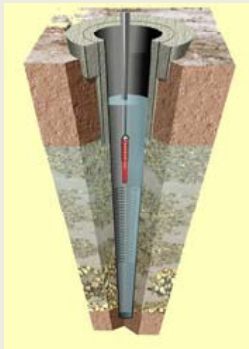
**From the dug-well
to the deep borehole.**



**From the water wheel
to the pump.**



**From the water-witches
to Hydrogeology.**





THE FIVE USUAL STAGES IN GROUNDWATER DEVELOPMENT(V)



SARAGOSSA, Oct 2002



BRUSSELS, Sep 2001



VALENCIA, May 2003

**CLAMOROUS SOCIAL
CONFLICTS IN SPAIN**



6. THE DESIRABLE 6TH STAGE (I)

- The end of conflicts require a better participation of stakeholders, mainly of the *farmers' lobby*
- The solution has to be a WIN-WIN solution
- The recent advances in science and technology may allow this in industrialized and emerging economies countries



6. THE DESIRABLE SIX STAGE(II)

- Except in poor countries:

the motto

More crops and jobs per drop

must change to

More cash and care of nature per drop

- This is possible due to scientific and technological advances



7. CONCLUSIONS (I)

- **The intensive use of groundwater silent revolution has produced stupendous social and economic benefits.**
- **It has also created some problems, mainly ecological, due to its scarce planning and control by the governmental agencies**



7. CONCLUSIONS (II)

- **The usual current anarchy in groundwater management or governance demands a greater participation of the users, mainly farmers, by means of groundwater user associations.**
- **It is urgent to assess the different types and performance of such associations.**



THANKS FOR YOUR ATTENTION