

MERCOSUR-EUROPEAN UNION DIALOGUE ON CLIMATE CHANGE, ENERGY AND FOOD SECURITY

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INSTITUTIONAL SUPPORT:



UNIVERSIDAD
DE LA REPUBLICA
URUGUAY

CURE-Facultad de Ciencias, Universidad de la República,
Maldonado-Uruguay



Clima de cambios

NUEVOS DESAFÍOS DE ADAPTACIÓN EN URUGUAY

Resultado del proyecto: TCP/RU0302 Nuevas Políticas para la Adaptación de la Agricultura al Cambio Climático

Compilado



Variabilidad climática de importancia para el sector productivo

Elaborado por South American Institute of Resilience
and Sustainability Studies (SARAS), Bella Vista*,
Maldonado-Uruguay

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AUTORES:

Mario Bidegain; Carolina Crisci; Laura del Puerto; Hugo Inda;
Néstor Mazzeo; Javier Taks; Rafael Terra

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Capacidad de adaptación y transformación en un clima de cambios

Elaborado por SARAS con colaboradores de las Facultades de Ciencias, Ciencias Sociales e Ingeniería, Centro Universitario Regional Este (CURE), así como de la Dirección Nacional de Meteorología.*

AUTORES:

Néstor Mazzeo, Hugo Inda, Javier Taks, Rafael Terra, Mario Bidegain, Carolina Crisci e Isabel Bortagaray.



Organización
de los Estados Unidos
para la Educación,
la Ciencia y la Cultura

Toma de decisiones y cambio climático:

acercando la ciencia y la política
en América Latina y el Caribe



Objetivo de
Desarrollo
Sostenible



Capítulo 2:

Construcción del diálogo ciencia – política en el análisis y la gestión del cambio climático

Néstor Mazzeo

Pedro Roberto Jacobi

Uno de los objetivos del Centro Regional de Cambio Climático y Toma de Decisiones es propiciar la innovación y el liderazgo en la búsqueda de soluciones compartidas a los desafíos comunes a través del diálogo y la capacitación entre actores de distintos sectores y disciplinas



Alianza Clima y
Desarrollo

CASOS DE ESTUDIO



CAMBIO CLIMÁTICO, PROCESOS DE ANÁLISIS Y TOMA DE DECISIÓN.

Néstor Mazzeo, Manfred Steffen y Paula Bianchi

**1. MAIN DRIVER: VARIABILITY OF
PRECIPITATION REGIME (CURRENT AND
FUTURE)**

**2. MAIN CONSEQUENCES: ENERGY, URBAN
AND RURAL FLOODS, DRINKING WATER
AND FOOD SUPPLY**

(DIS)ADAPTATION IN LATIN AMERICA

- + Increase of vulnerability
- + Multiple external pressures working at the same time: land use transformation, poverty, wealth distribution and socio-economical development, the political dynamics in the region (including Mercosur and the multilateral agreements and negotiations)

(DIS)ADAPTATION IN LATIN AMERICA

+ A more complex exposure scenarios, higher sensitivity, lower adaptation and resilience capacity of the social-ecological systems

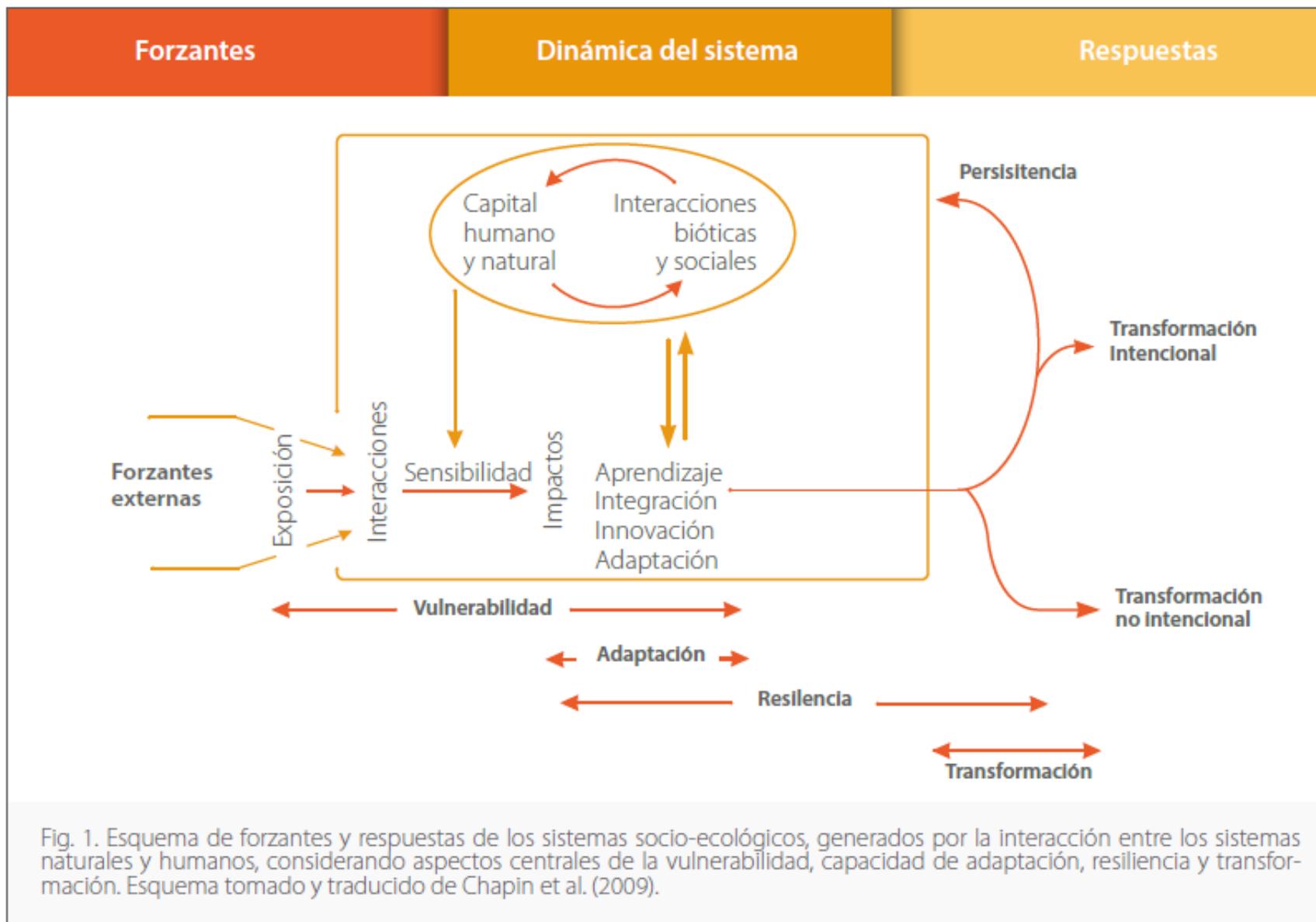


Fig. 1. Esquema de forzantes y respuestas de los sistemas socio-ecológicos, generados por la interacción entre los sistemas naturales y humanos, considerando aspectos centrales de la vulnerabilidad, capacidad de adaptación, resiliencia y transformación. Esquema tomado y traducido de Chapin et al. (2009).

KEYS TO TRANSFORMATIONS

- + Overcoming the fragmentation and sectoral analysis
- + Interactions and co-benefits among energy, water and food sectors planning
- + An adequate combination of scale analysis: short vs long temporal perspective, combination of spatial scales

KEYS TO TRANSFORMATIONS

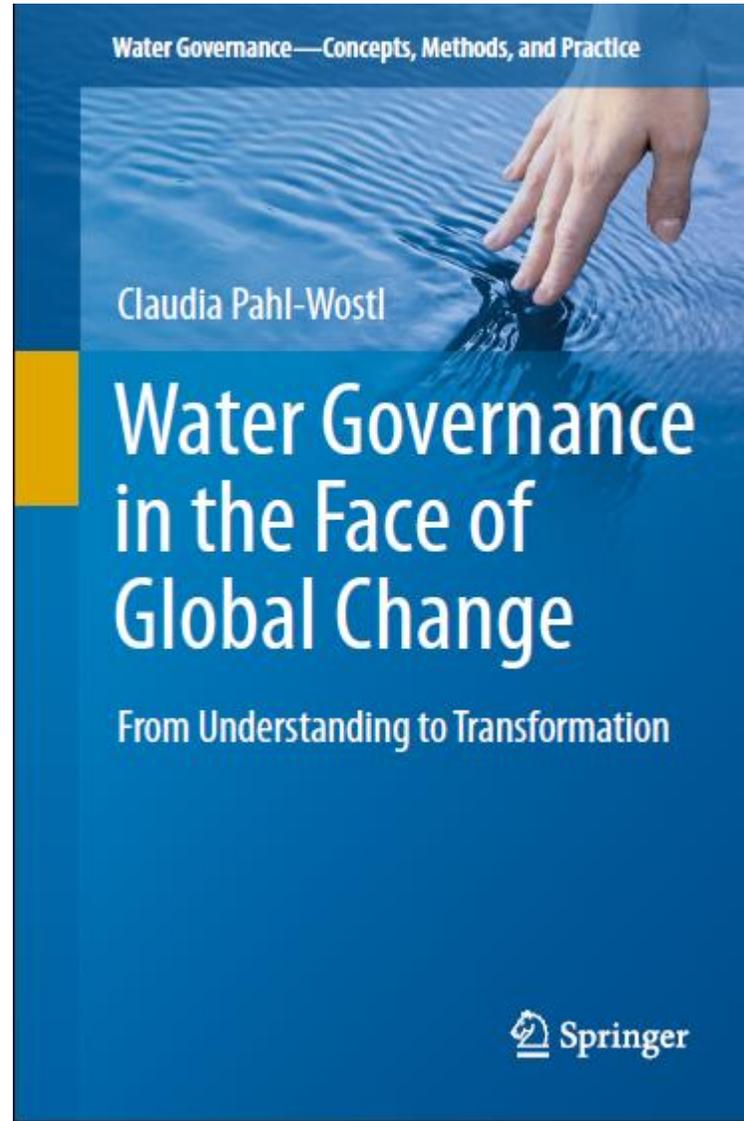
- + Promote better strategies for knowledge generation and knowledge management
- + Platforms for fostering the science policy dialogue, and the interaction between academic and non-academic dialogue
- + In few words: abandon the command-control paradigm and promoting the adaptive management (experimentation and social learning)

DEVELOPMENT OF THE MAIN PARADIGMS



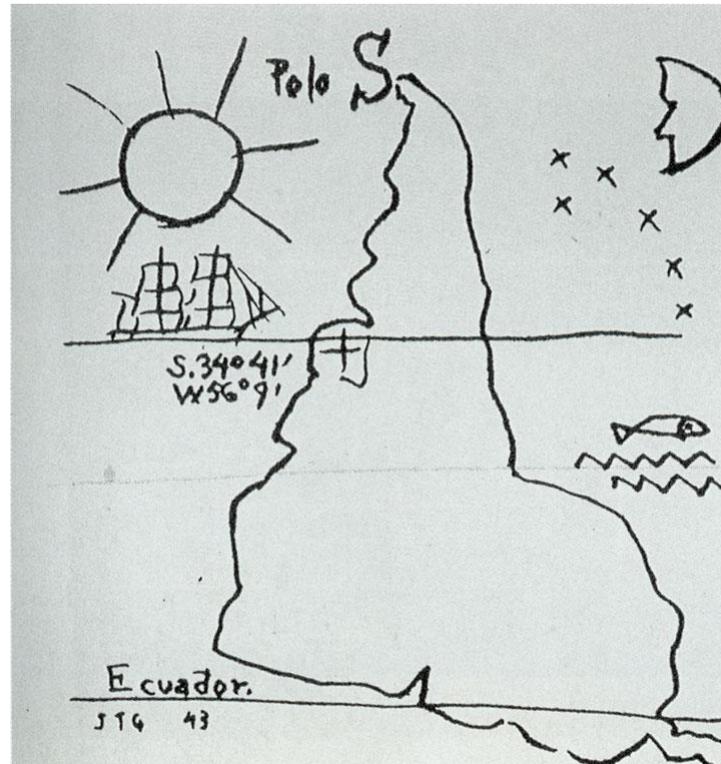
Overcome the fragmentation in the analysis and decision-making processes

Incorporate and properly handle uncertainty and promote the social learning



LATIN AMERICA TRANSITION

COMMAND-
CONTROL

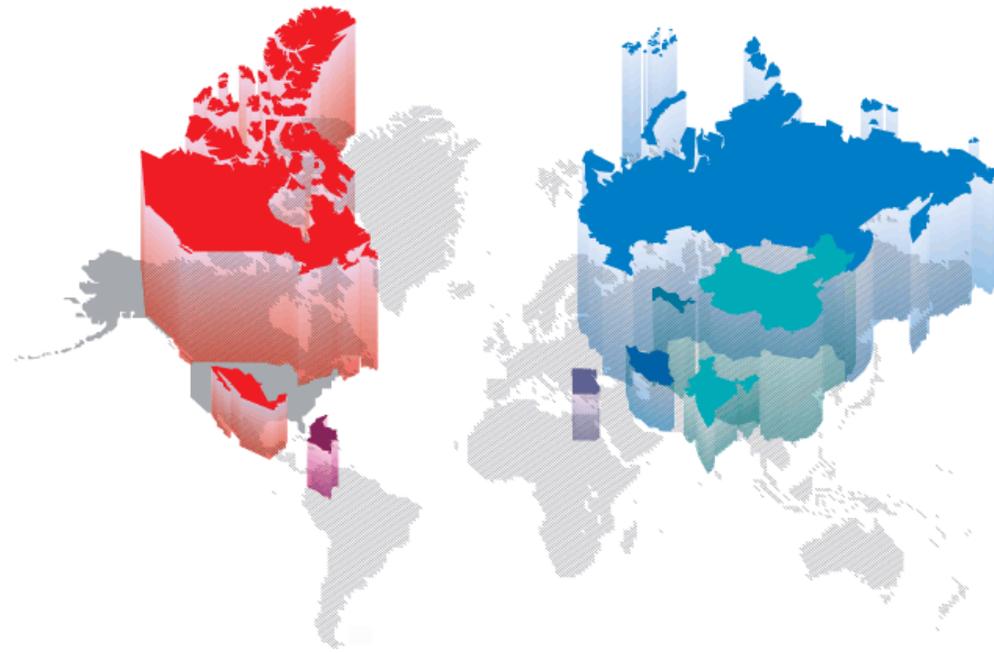


INTEGRATED
MANAGEMENT





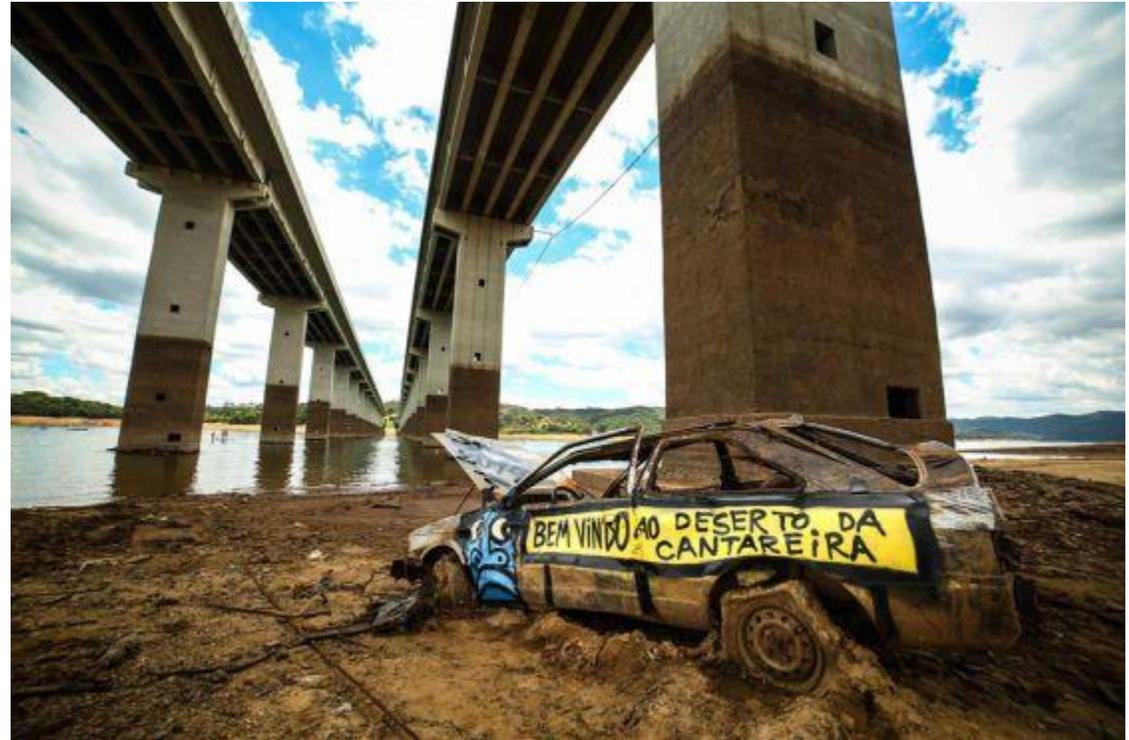
We live on an island of knowledge surrounded by a sea of ignorance. As our island of knowledge grows, so does the shore of our ignorance.
John A. Wheeler, *Scientific American* (1992).



.....the world has problems,
universities have departments
(Brewer 1999) and the States
have Ministers (Terra, 2015).

WATER CRISIS IN SAO PAULO

Is the São Paulo crisis a study case promoted exclusively by the climate variability, is it a management crisis or an interaction between both factors?





WATER CRISIS IN SAO PAULO

+ The water crisis in São Paulo clearly follows a scenario of reduced rainfall in the southeastern region of Brazil in the period 2011-2015.

+ However, other drivers or pressures interacted simultaneously.





WATER CRISIS IN SAO PAULO

- + The increase of urban areas in the metropolitan region and its impacts on recharge of surface and groundwater systems.
- + Unplanned occupation of key reservoir margins.
- + Deterioration of the water quality of several crucial reservoirs of the water supply system.
- + Structural problems of the management system (Jacobi et al., 2012; Souza, 2015).

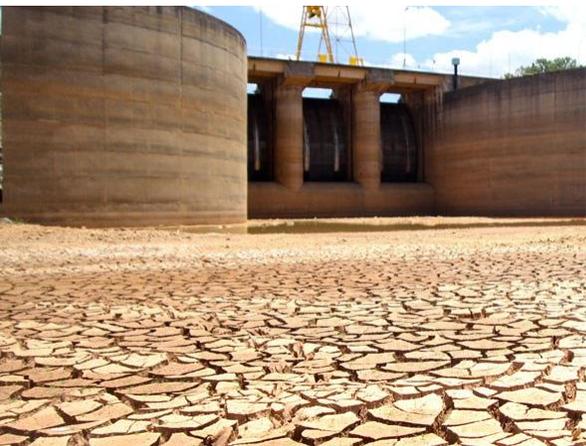




WATER CRISIS IN SAO PAULO

+ Brazil is a regional example of the transitions between command-control and integrated management observed in various regions of the planet.

+ In the case of San Pablo, the transition tried to overcome the fragmented, centralized management, organized according to political-administrative scales and in the hands of a state technocracy, controlled almost exclusively by the interests of the electricity sector (Souza Jr. and Fidelman, 2009).





WATER CRISIS IN SAO PAULO

+ Unfortunately, the new institutional arrangement of the 1990s failed to establish negotiation and collaboration spaces, with little participation in the new bridges institutions (basin committees) (Jacobi et al., 2015).

+ At the moment, it is not possible to consolidate a system of integrated management of water resources according with their full potential and transition to adaptive management appear very distant in time.

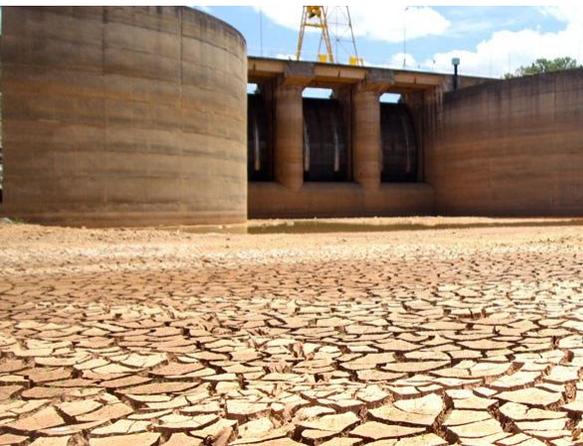




WATER CRISIS IN SAO PAULO

+ Crucial message: changes in the structure of the systems do not guarantee, by themselves, the fulfillment of the objectives or goals.

+ The characteristics and skills of the actors are as relevant or more than the structure of the management system.



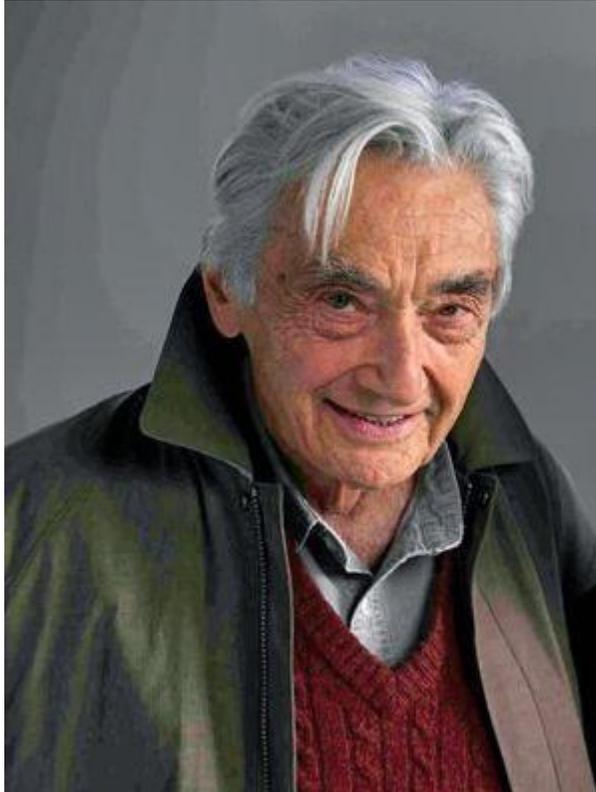


DRINKING WATER SUPPLY IN THE METROPOLITAN REGION OF URUGUAY



+ The main difficulty is the significant inertia found in the institutional structure directly responsible for the implementation, control and monitoring of the agreed measures and strategies defined in the basin commissions and other bridge structures recently created.





What matters are the
countless and small feats
of the common people,
they lay the foundations
of the important events
that happen in history.
Howard Zinn



El empobrecimiento radica en no ser capaz de comprender y apreciarla riqueza que significa la relación con los demás. No sólo esto, sino haber perdido la capacidad de sentirse parte de algo más grande que uno mismo. Silvia Federici, Brecha, 5 de febrero de 2016