

National Program Against Drought (PRONACOSE)



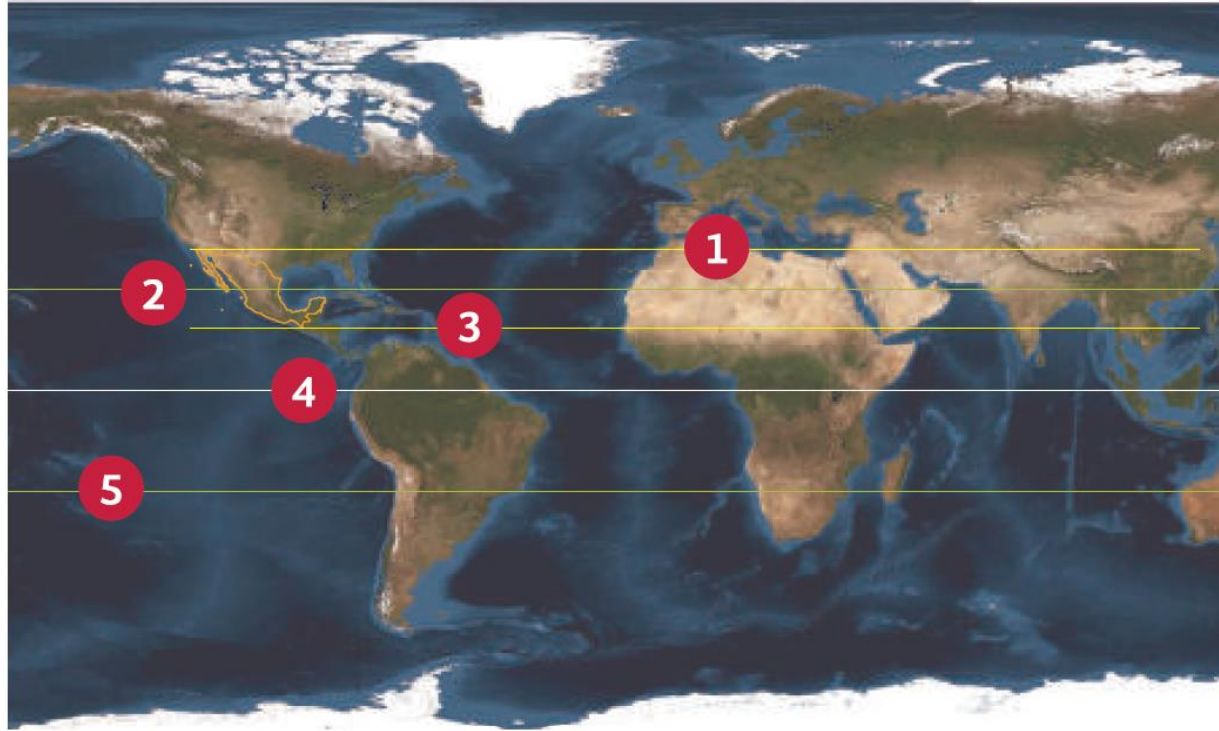
"Predict, plan, prepare: how to stop drought becoming famine
Seminar"

Rome, Italy, June 2017

- Introduction on the problem of drought in Mexico.
- Background of PRONACOSE.
- Transition from reactive to preventive approach.
- Conceptualization.
- Components of the program.
- Application of the program.
- Results of the program.
- Future work.



Vulnerability of Mexico due to geographic location



1 Northern latitude of Mexico $32^{\circ} 43' 06''$ N

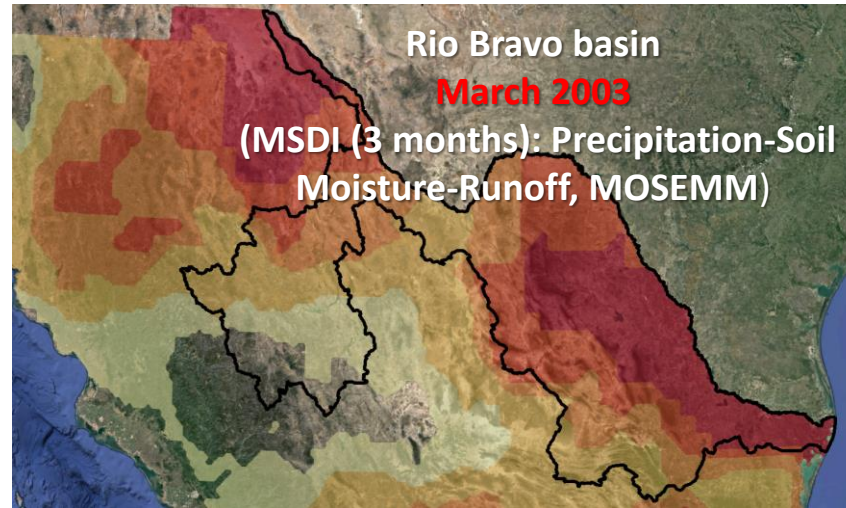
2 Tropic of Cancer $23^{\circ} 26'$ N

3 Southern latitude of Mexico $14^{\circ} 32' 27''$ N

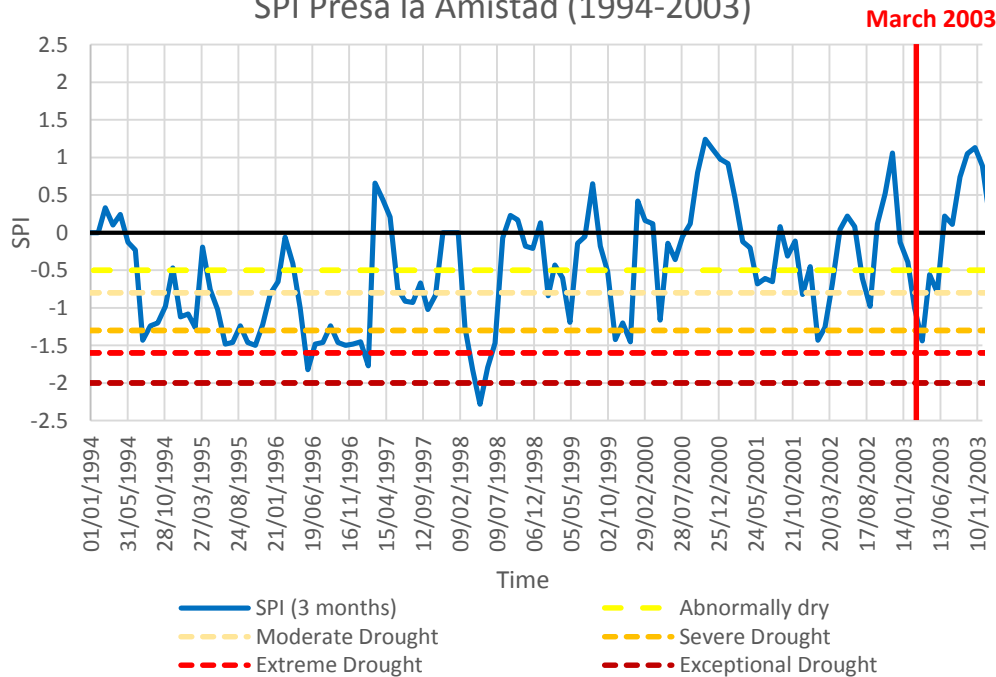
4 Equator

5 Tropic of Capricorn $23^{\circ} 26'$ S

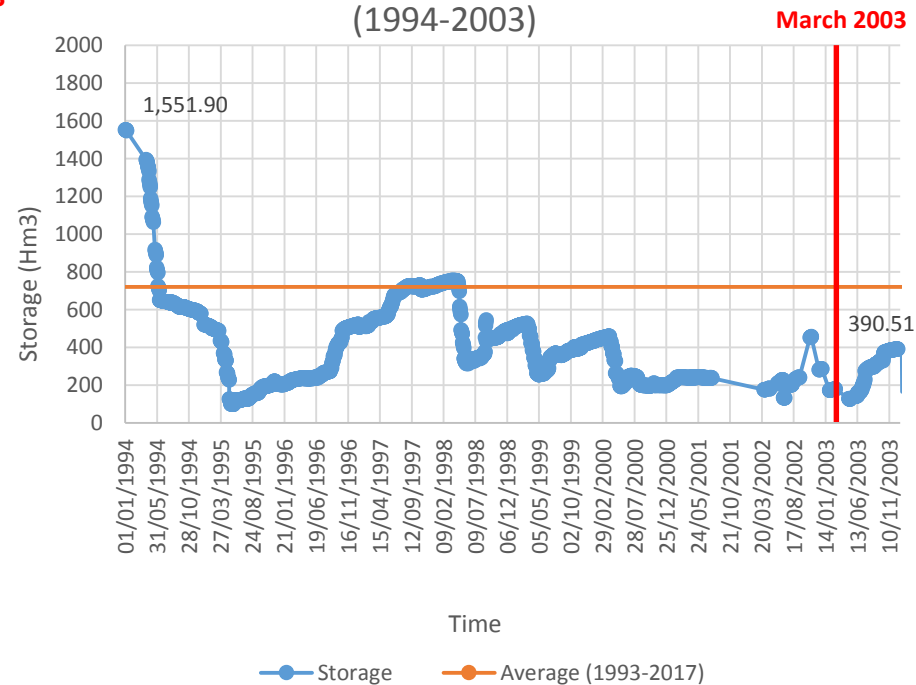
Introduction on the problem of drought in Mexico, Río Bravo 1994-2003



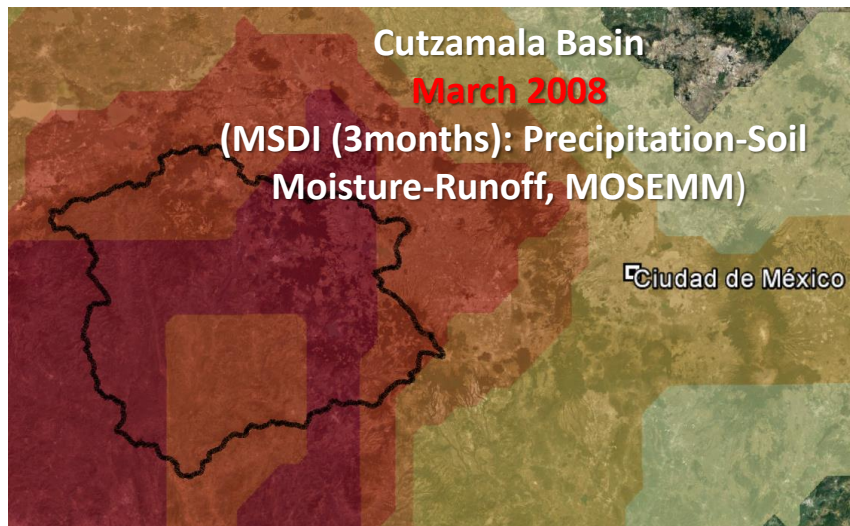
SPI Presa la Amistad (1994-2003)



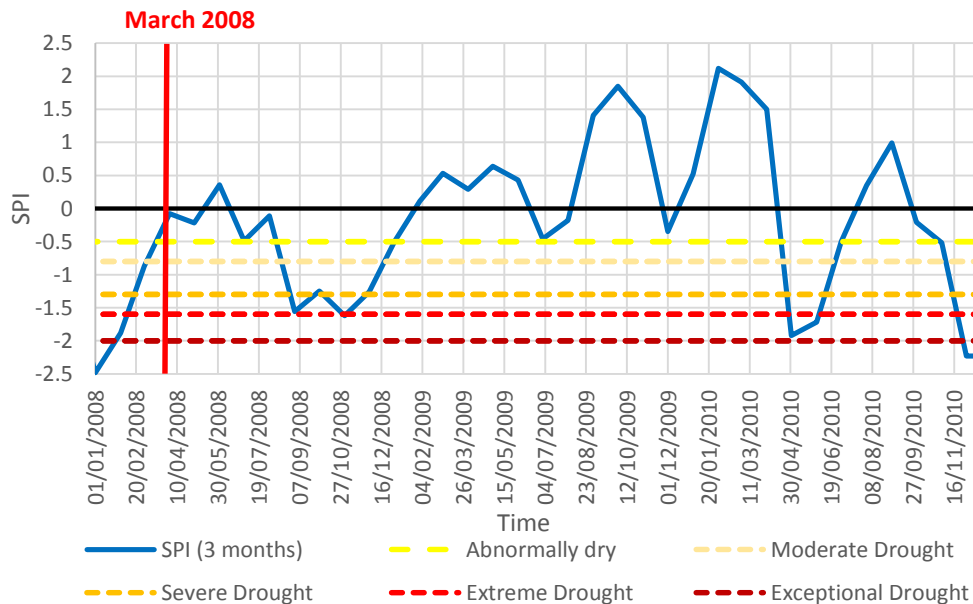
Storage evolution of Presa La Amistad (1994-2003)



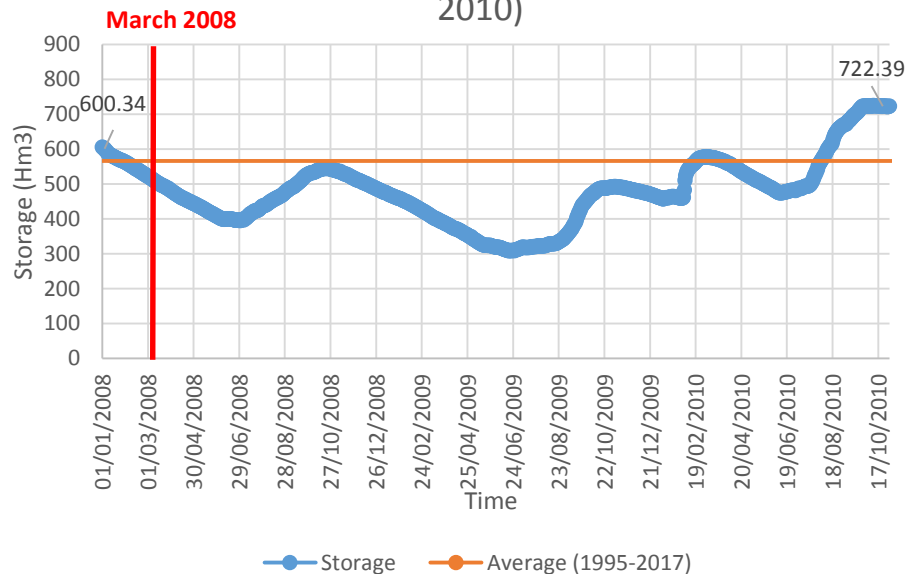
Introduction on the problem of drought in Mexico, Cutzamala 2008-2010



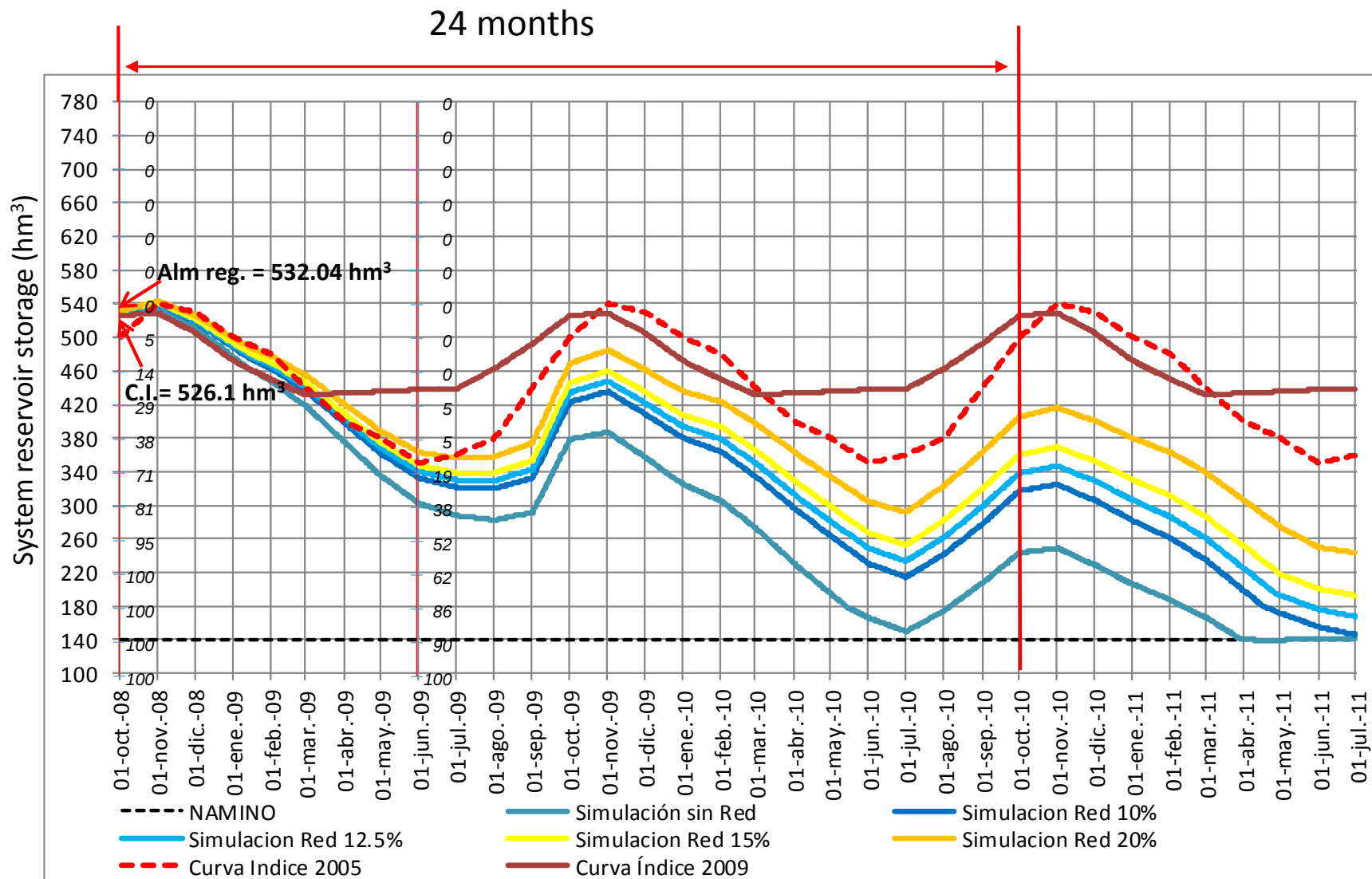
SPI Cutzamala System (Atotonilco) (2008-2010)



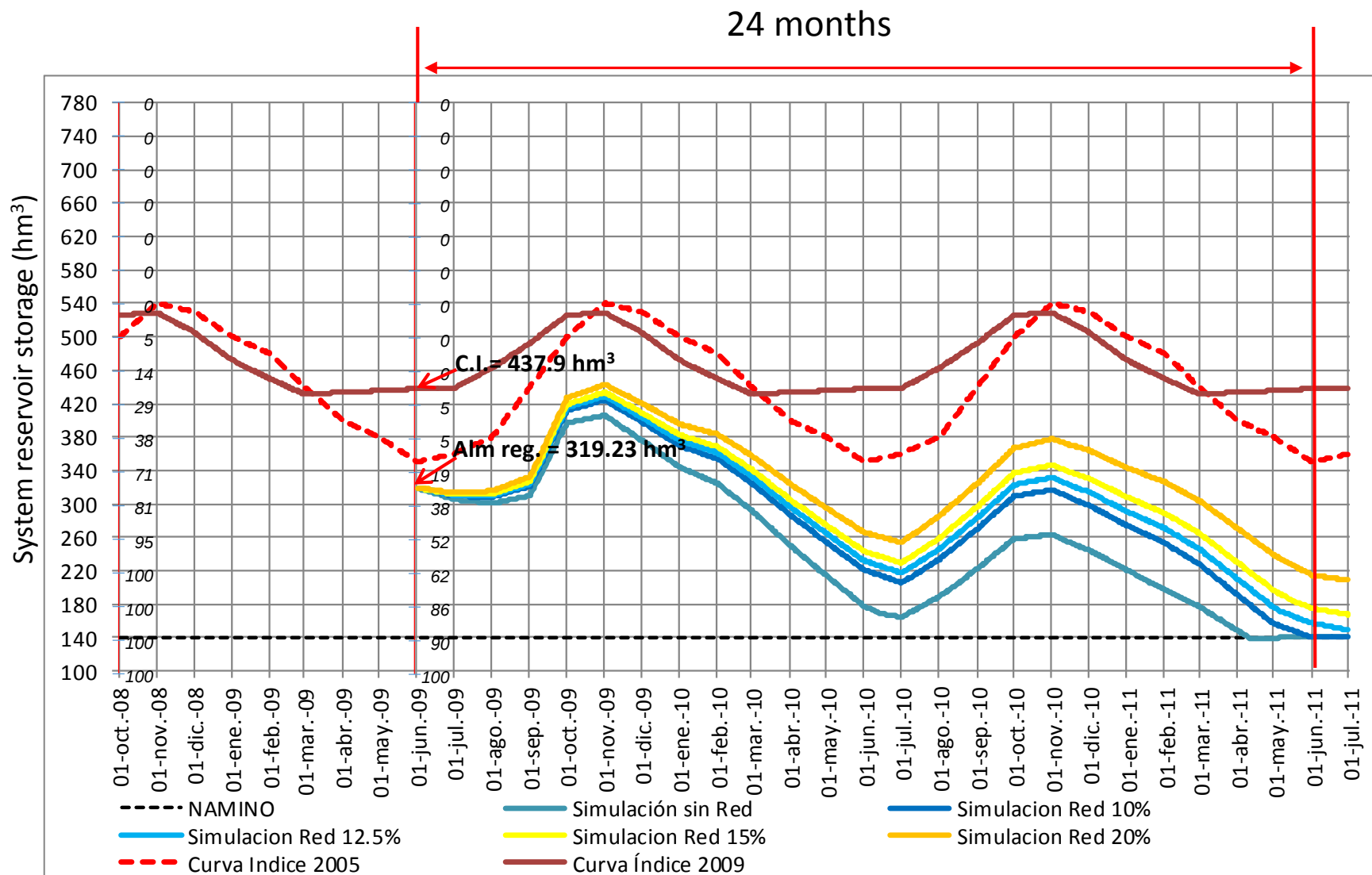
Storage evolution of Cutzamala System (2008-2010)



Introduction on the problem of drought in Mexico, Cutzamala 2008-2010



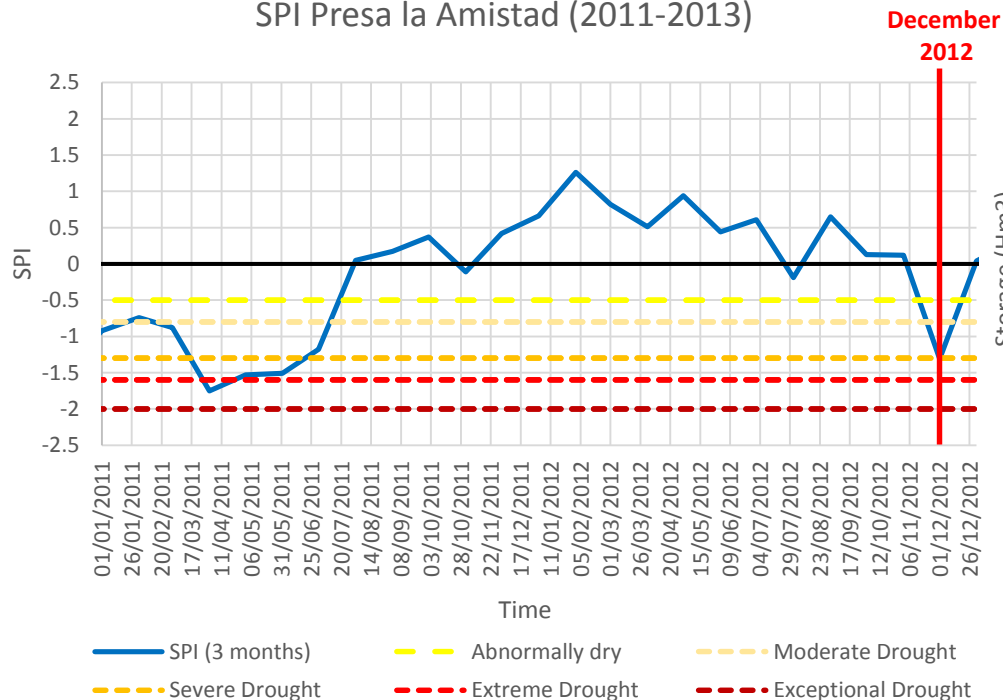
Introduction on the problem of drought in Mexico, Cutzamala 2008-2010



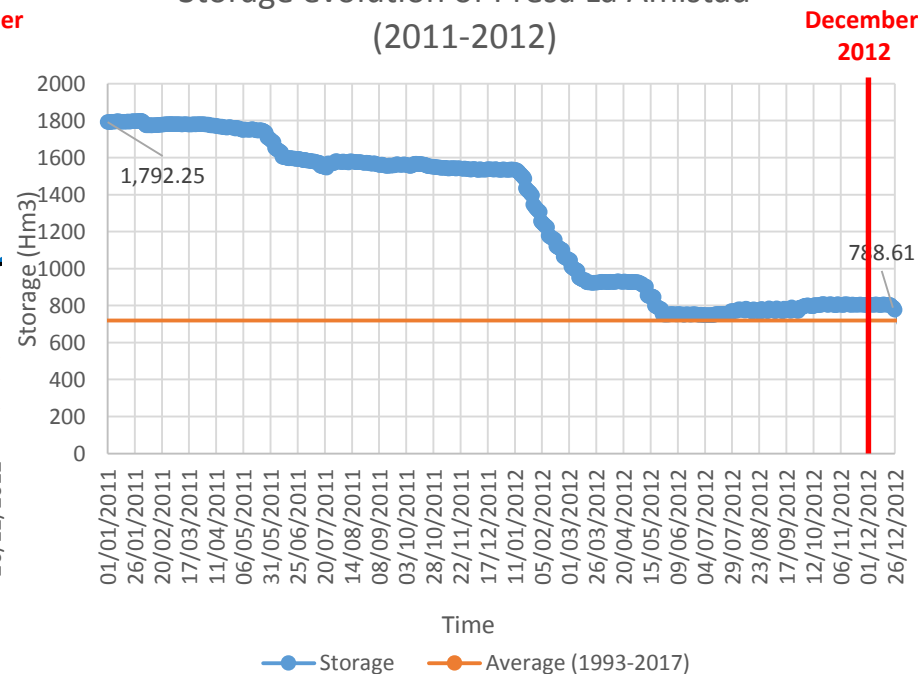
Introduction on the problem of drought in Mexico, whole country 2011-2012



SPI Presa la Amistad (2011-2013)

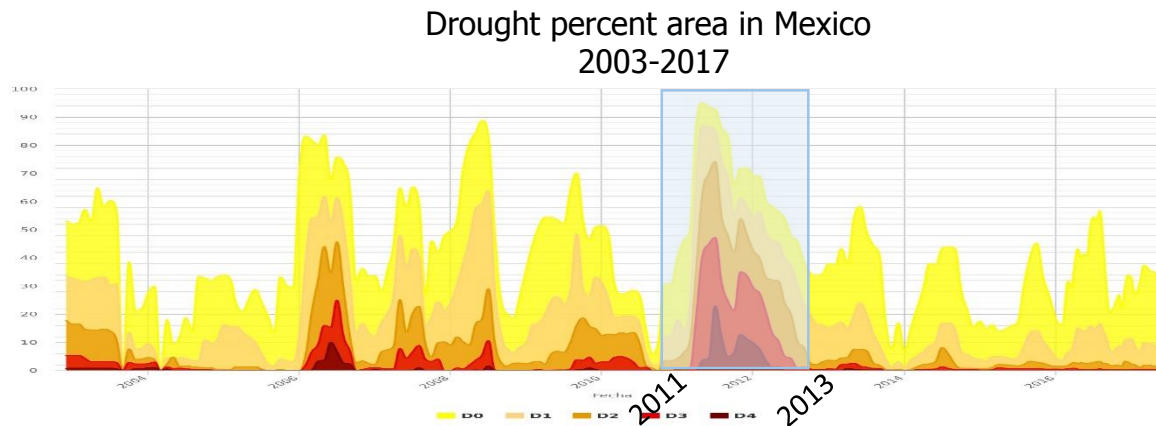


Storage evolution of Presa La Amistad (2011-2012)



Background of the program

- From 2011 to 2012, the worst drought since 1941 was presented.
- It affected about 90% of the country, caused losses of 1.2 billion of USD according to the U.S. Agriculture Department, and 11.6 billion of USD according to an estimation of the Mexican Agriculture Commission.
- The North was the most affected region.
- Because of the 2011-2012 drought, it was necessary to take measurements of social, economic and fiscal policies.
- In that year it was implemented: "Strategy for attention of the states affected by drought" and in 2012: "Agreement of actions to mitigate drought effects through federal entities".
- Drought attention had two components: humanitarian and productive. Potable water supply, adequate water management and sustainable use of natural resources attended the humanitarian component, and the second one consisted on support to affected areas, maintain productive capacities, activation of insurance schemes and financing.
- In 2013 was designed and implemented the National Program Against the Drought (PRONACOSE).
- The principal objective is to identify actions that allow to make opportune decisions to prevent and mitigate drought affectations at River Basin Council level (Política Pública para la Sequía, 2014).

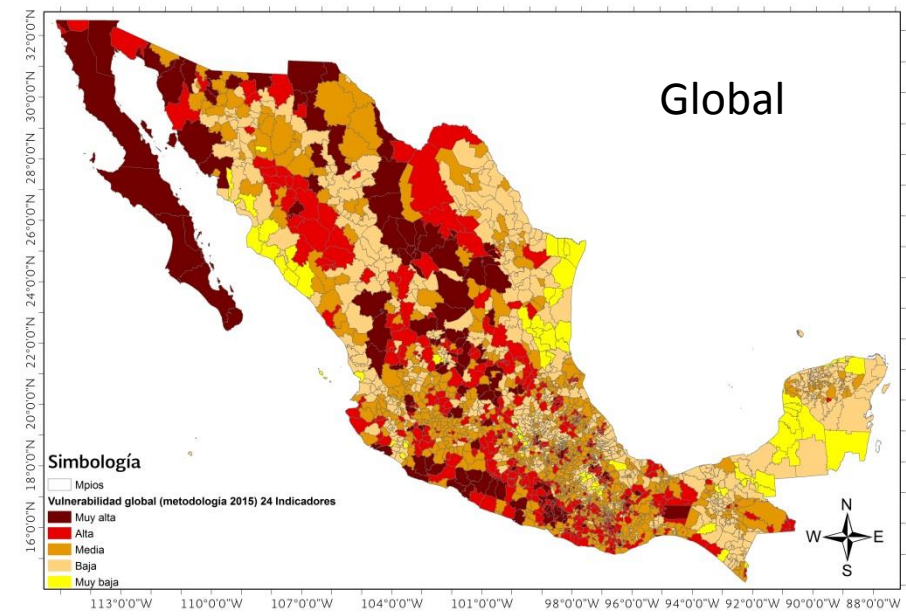
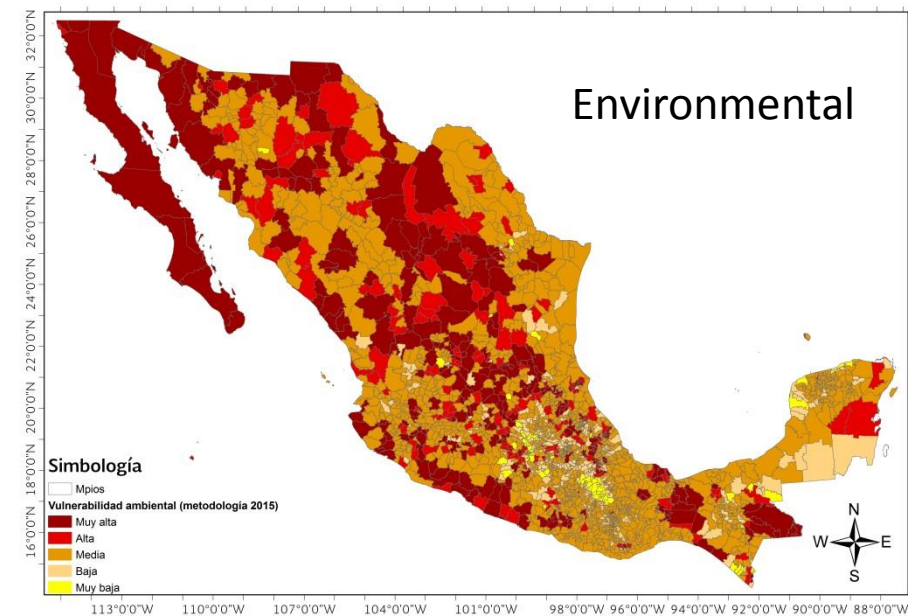
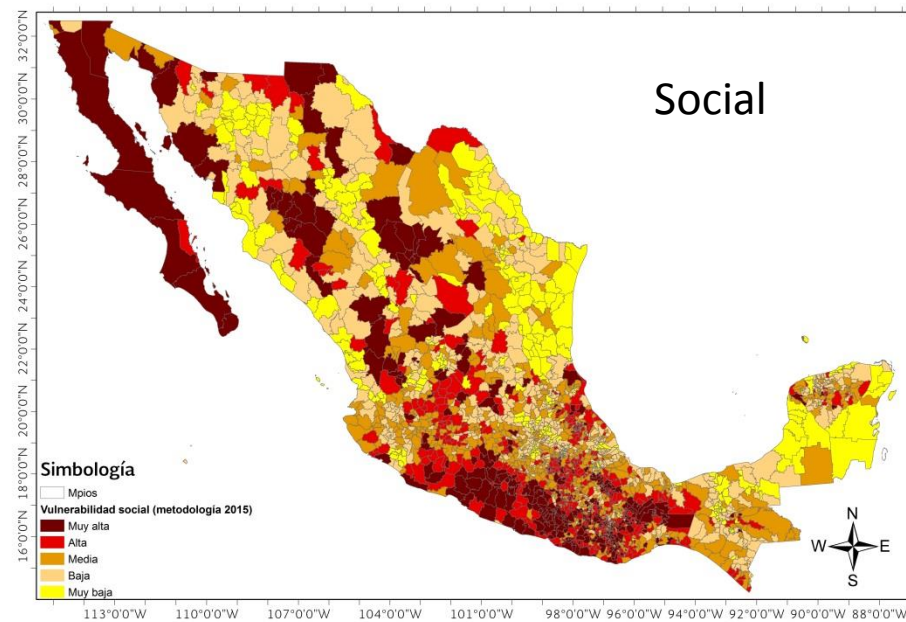
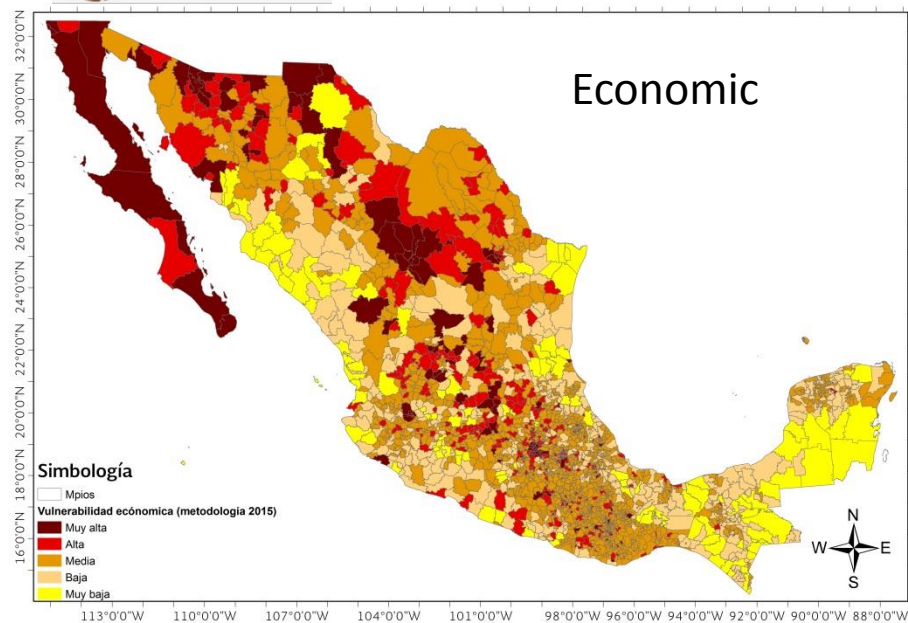


Transition from reactive to preventive approach

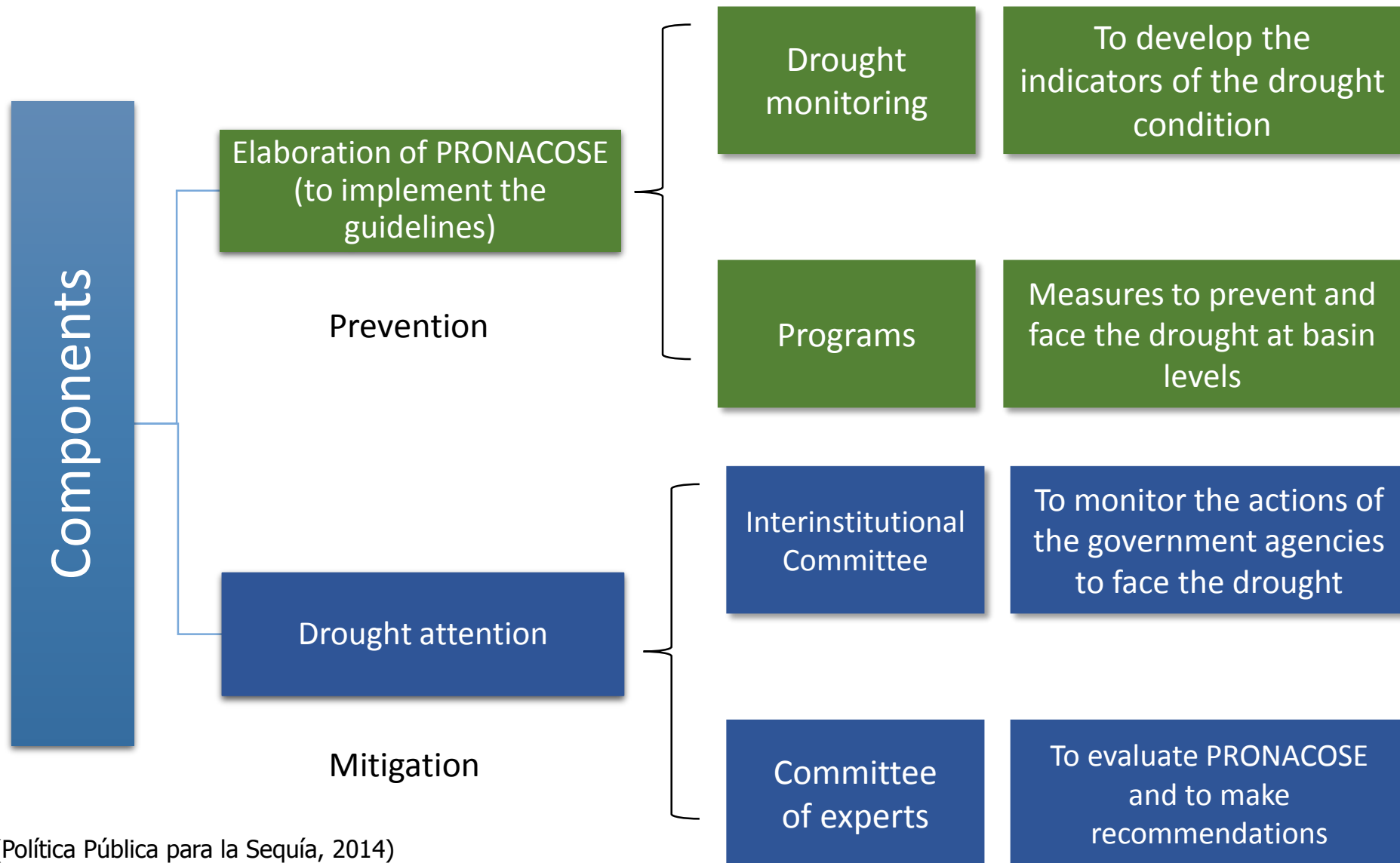
- The program was conceived in transition between governmental paradigms and instruments of management.
- In that moment drought was attended by traditional mechanisms of response with federal resources.
- At the same time it was define the implementation of new policies with preventive approach with three lines: Programs of Preventive and Mitigation Actions of Drought (PMPMS), legal instruments to guarantee water for human consumption and attention by coordinate mitigation actions.



Vulnerability maps with 24 indicators (2016)

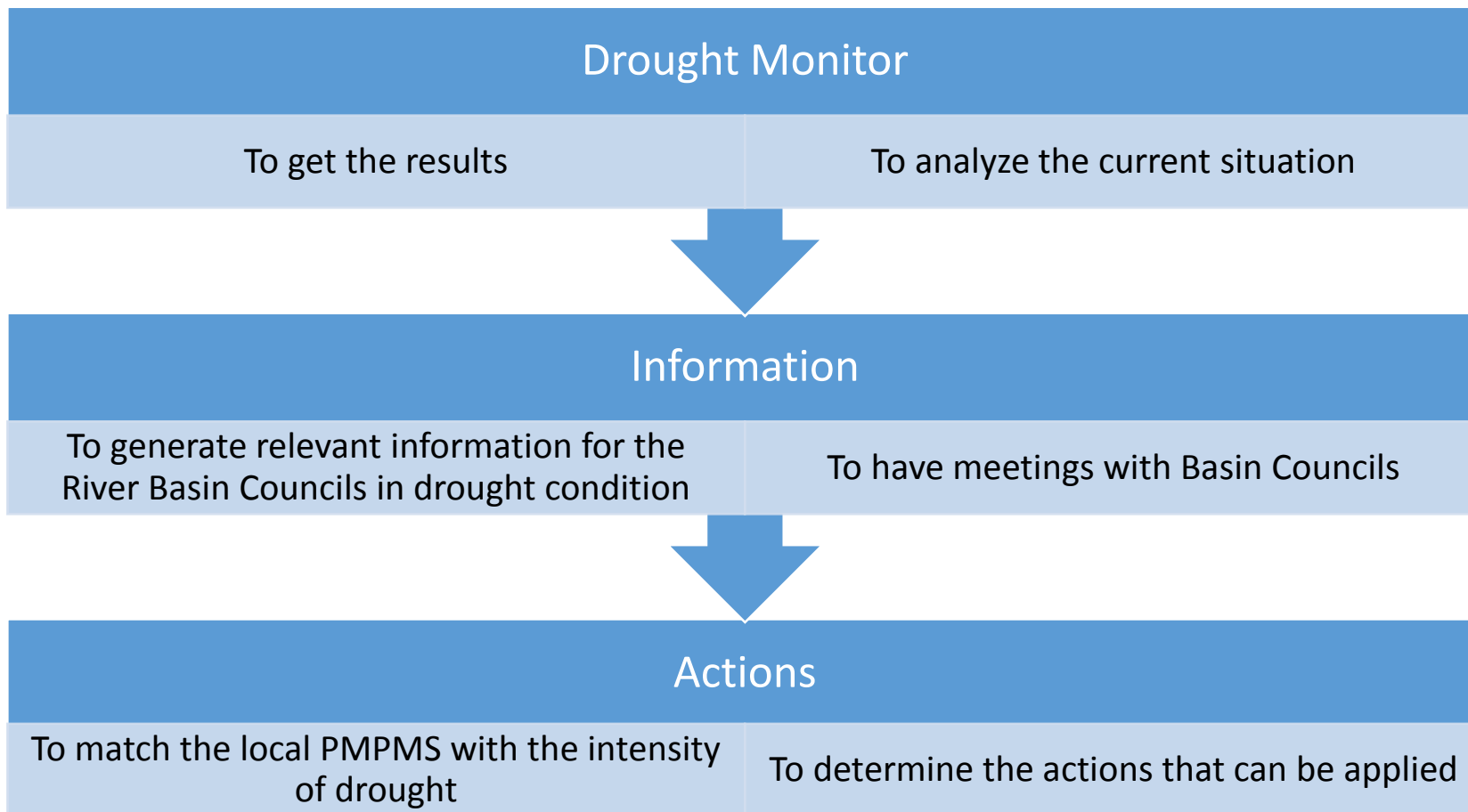


Components

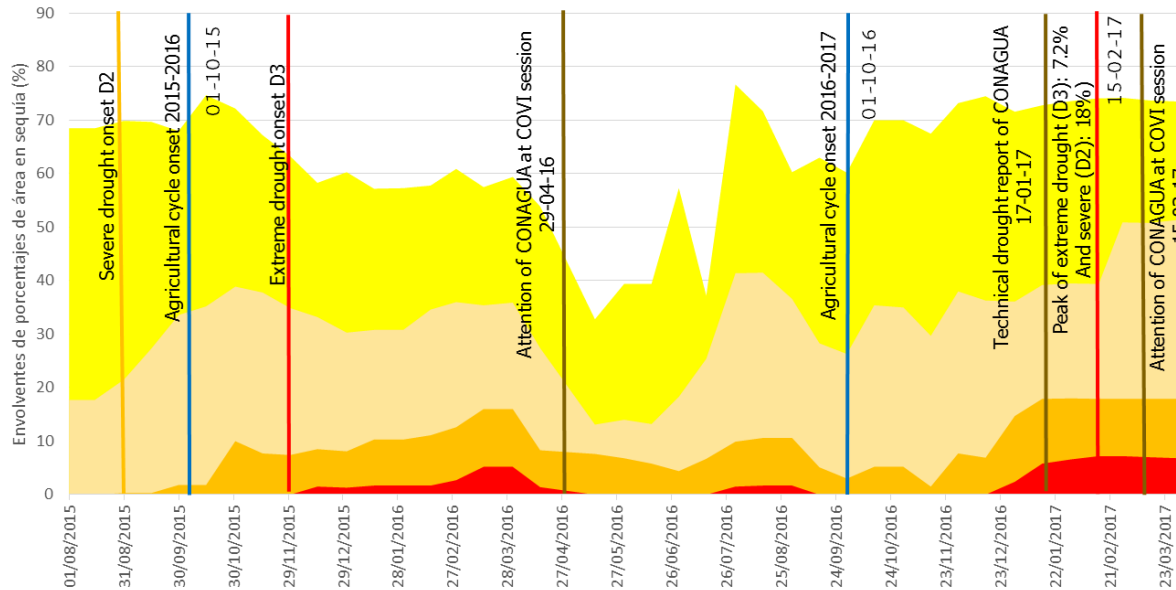


Application of the program

Under a condition of drought



Evolution of drought area percentages in the state of Oaxaca



Monitoring and preventive actions (COVI sessions)

Impacts assessment

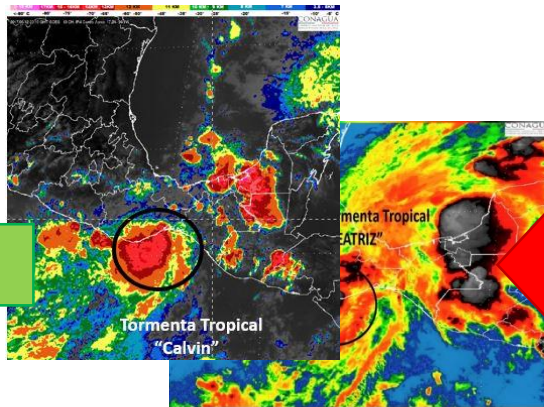
The consequences were: the **main reservoir** of “El Istmo de Tehuantepec” the “Presa Benito Juárez” had **14%** of its capacity, that reservoir supplies water to **agricultural and domestic use**.

“Benito Juárez”
reservoir at 102%
Of its capacity

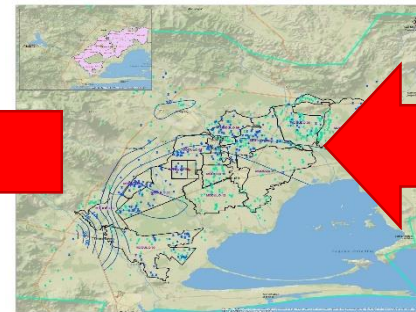
Mitigation actions

Projected area for wells:

Because of the **extreme situation** there was necessary to take **mitigation actions** in order to reduce the affectations. So CONAGUA proposed to **build and rebuilt wells**.



Occurrence of Tropical Storms:
“Beatriz” and “Calvin”



Results

- **2013:** analysis of the aspects of monitoring and early warning; development of Programs of Preventive and Mitigation Actions of Drought (PMPMS, its acronym in Spanish); creation of Inter-institutional Committee of Droughts and Floods Attention; celebration of four Committee sessions.
- **2014:** improving of drought monitoring, Mexican Drought Monitor published every 15 days; PMPMS implementation; development of vulnerability of drought methodology; historical drought occurrence review; celebration of four Committee sessions.
- **2015:** 48 PMPMS developed and implemented at Basin Councils and Cities; updating of vulnerability methodology with 24 indicators; drought risk evaluation; celebration of four Committee sessions.
- **2016:** development of complementary tool of Mexican Drought Monitor, which increases the quality of drought monitoring: Mexican Multivariate Drought Monitor (MOSEMM, its acronym in Spanish); updating of drought vulnerability; application of preventive actions at basin council by awareness of drought occurrence and review of actions that could be applied; celebration of three Committee sessions.
- **2017:** celebration of ordinary and extraordinary sessions in order to attend the severe drought case of Oaxaca; evaluation of Federal Programs actions to reduce drought vulnerability of population.

Future work

- According to the Integrated Drought Management Programme (IDMP), the 3 pillars of national drought policy, which are part of integrated drought management, are:
 1. Drought Monitoring and Early Warning Systems;
 2. Vulnerability and Impact Assessment;
 3. Preparedness and Mitigation Actions.

So the future work is focused on strengthening the corresponding actions to those pillars:

- Applying efficiently the complementary tool of drought monitoring: MOSEMM;
- Developing and apply an effective early warning system;
- Reviewing the Federal Programs actions in order to evaluate the impact that they had in drought vulnerability evolution;
- Improvement of risk evaluation in order to prioritize public policies applications and induce risk reduction;
- Reviewing, evaluation and updating of the PMPMS in terms of application and effectiveness;

CONAGUA

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<http://www.gob.mx/conagua/acciones-y-programas/programa-nacional-contra-la-sequia-pronacose-programas-de-medidas-preventivas-y-de-mitigacion-a-la-sequia-pmpms-para-ciudades>