

The Panama Canal Watershed



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***Integrated Management of
Water Resources in the
Americas:
Challenges and Emerging Issues.***

A topographic map of the Panama Canal Watershed (PCW) in Panama. The map shows the canal route in blue, connecting the Atlantic Ocean to the Pacific Ocean. The watershed boundary is marked with a red line. The terrain is color-coded by elevation, with green for lower elevations and brown for higher elevations. The Pacific Ocean is labeled in Spanish as 'Océano Pacífico' in the bottom right corner.

The Integrated Management of the Panama Canal Watershed (PCW): Challenges and Emerging Issues

I. Presentation of the mini-project

A big watershed for a small country

- 6.5 % of the nation's territory
- 35% of the Gross Domestic Product
- The most modern and powerful corporation of the country operating in it.
- The only watershed with a land use plan and a special coordination agency in Panama.

Potentially conflictive resources demand

- Water for transportation, hydropower and human and industrial use.
- Forested land for soil protection
- Cleared land for cattle raising
- Undisturbed land for erosion control
- Altered land for urban expansion and the construction of highways and railways.

Some problems to be faced

- Cultural: different worlds in a narrow place
- Institutional: solutions constructing its problems
- Political: sharing power (local, national, international)
- Socio - Economical: logics in conflict
- Technological: the meanings of "development"

Working together

Sharing

- a problem
- information
- experiences

In order to

- create new questions
- produce new answers
- propose new approaches

Two basic questions

- What should be the characteristics of an integrated management plan for the PCW?
- How should the country make use of the institutional and technological resources at its disposition for this purpose?

The mini project will

- Simulate a consulting process, to produce recommendations for the integrated management of the PCW to a consortium conformed by the Panama Canal Authority (PCA) and a NGO representing bussines and social movements related to the PCW.
- The “consultants” will receive information from the same sources under use by all parts involved in Panama.
- The recommendations will be presented to the Interinstitutional Comission for the PCW, as a contribution to the debate ongoing in Panama.

Consulting will include

- Receiving information
- Questioning the sources provided
- Identifying other necessary information
- Making research and exercises
- Presenting ideas and proposals for debate
- Elaboration of a final report

The information to be provided will include

- The description of the current situation in the PCW, at the sociodemographic, cultural, institutional and technological levels.
- The analysis of the processes and trends conducing to that situation, and
- The presentation of the main alternatives and restrictions for the management of the PCW under consideration in Panama.

The basic sources will be:

- The USAID/STRI/ANAM's report on the monitoring of the PCW
- The Panama Canal Authority web site (www.pancanal.com) for the institutional, legal and historical aspects of the problem.
- Supporting technical materials

Working with you will be

Carlos Vargas

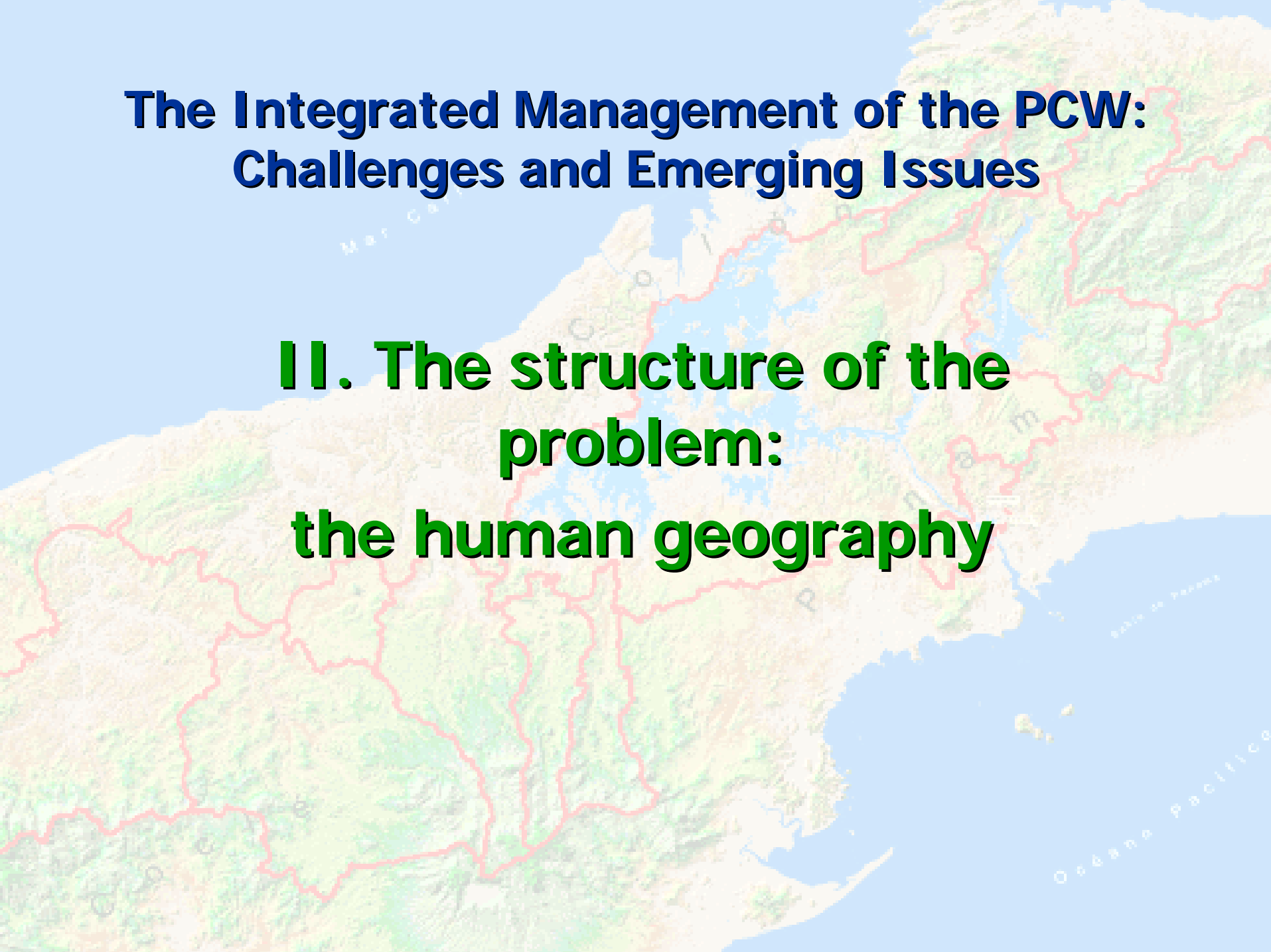
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II. The structure of the problem: the human geography



A watershed of contrasts

- 6.5 % of the nation's territory
- 6.7 % of the country's population
- 35 % of the Gross Domestic Product (est.)
- 60% of population living in poverty

Population in the PCW

1950	21,000
1990	113,000
2000	188,000
2020	400,000 (est.)

Population around the PCW

Year	Around PCW	Country
1970	828,931	1,428,082
1980	1,072,748	1,795,012
1990	1,413,611	2,329,329
2000	1,795,016	2,839,177

Human settlements within the PCW

Total	1,052
> 1,500 hab.	1,037
% population	60
< 1,500 hab	15
% population	40

Distribution of population within the PCW (%)

West side **21**

East side **79**

**Trans Isthmian
corridor** **62**

Chilibre **50**

Human activities in the PCW

West side

Extensive cattle
ranching
Commercial agriculture
Peasant agriculture
Forestry

East side

Industrial production
Mining
Construction
Cattle ranching
Peasant agriculture
Forestry

Land use patterns in the PCW: present and future (%)

Extensive ranching	39.0	2.0
Canal operation	34.0	40.0
Protected areas	20.0	15.0
Urban areas	6.0	12.0
Agriculture	0.5	8.0
Forestry & agro forestry	0.5	23.0
TOTAL	100	100

Political structures present in the PCW

- 3 provinces (Cocle, Panama, Colon)
- 11 Districts
- 48 Corregimientos
- All Districts and all border Corregimientos cover territory outside the PCW

PCW management: Legal & institutional framework

- **Constitutional Title, 1994**
- **PCA's Organic Law 19, 1997**
- **Land use plan, Law 21, 1997**
- **PCA's Board Resolution 16, 1999**

PCW management: the role of the Panama Canal Authority, 1

The PCA, in coordination with other government agencies as established by the Law shall be responsible for the *administration, maintenance, use and conservation of the water resources of the Panama Canal watershed*, which include the waters of the lakes and their tributary streams.

Constitutional Title, art. 310

PCW management: the role of the PCA, 2

The the ACP is solely charged with the management, administration, usage and conservation of *the Panama Canal watershed and its resources*. The Canal Authority must manage the watershed so as to guarantee a supply of potable water for the region's adjacent communities (Panama, San Miguelito, Colon, Arraijan and La Chorrera).

Law 19, 1997

**PCW management:
The Interinstitutional Commission
of the Hydrographic Watershed (ICHW), 1**

Presided by the General Administrator of the PCA

Integrated by:

- The Ministers of Government and Justice; Housing and Agricultural Development
- The General Administrators of the Interoceanic Region Authority and the National Environmental Authority
- Two representatives of NGOs “with interests in the watershed” (Natura Foundation and Archdiocesan Caritas)

PCW management: The ICHW, 2

ICHW functions include:

- To create a coordination mechanism between the organisms that have activities at the PCW
- To establish, through the PCA and with its coordination and direction, a mechanism for the financing of its activities

PCW management: The ICHW, 3

ICHW functions include:

- To supervise the programs, projects and policies necessary for the adequate management of the PCW
- To evaluate the programs, projects and policies existing or planned to exist in the PCW
- To create an environmental information center for the PCW

A topographic map of the Pacific Northwest region, showing terrain elevation in shades of green and brown. Red lines delineate administrative boundaries, likely counties or states. The map covers parts of Washington, Oregon, and California. The Pacific Ocean is visible in the lower right corner.

The Integrated Management of the PCW: Challenges and Emerging Issues

III. Environmental history and interdisciplinary analysis

Environmental history as a field of study

**Environmental history deals with the
interactions of humans and nature,
and the
consequences for both of them along
time**

Environmental history and interdisciplinary work, 1

Interdisciplinary work begins with the definition, by all parts involved, of the problem to be studied

Environmental history and interdisciplinary work, 2

Interdisciplinary work demands

“reconstructing the framework of knowledge so that we can understand the nature of our structural crisis, and therefore our historical choices for the twenty-first century”

Wallerstein, *Utopistics*, 1998

Environmental history and interdisciplinary work, 3

Within this process of reconstruction, environmental history helps to understand *how does the ways and means humans use to relate with nature influence, and are influenced by, social relations.*

Environmental history and interdisciplinary work, 4

Environmental history helps to understand a basic fact of human development:

Development means the reorganization of nature through the reorganization of society.

Environmental history and interdisciplinary work, 5

Environmental history can contribute with three basic elements to the definition of the problem under study:

- *The sociohistorical nature of nature*
- *The sociocultural nature of knowledge*
- *A better comprehension of the historical origins of current environmental problems*
 - Worster, "The two cultures revisited", 1996

Environmental history and interdisciplinary work, 6

Environmental history works at three levels of relation:

- *The biogeophysical environment*
- *Technology as a means of relation with nature and its implications for social organization*
- *Culture and values as means of legitimizing and / or transforming human relations with nature*

Worster: Transformations of the Earth, 1990

PCW: Conflicts at the biogeophysical level

- An increasingly artificial watershed
- A river flowing into two oceans
- The need to think like a river

PCW: Conflicts at the technological level

**Cows and ships: a highly
specialized developed
enclave in an underdeveloped
country.**

Conflicts at the cultural level

- A sophisticated hydraulic organization in a country with a pre-hydraulic culture
- The transition as a transformation of both the country and the former enclave

Environmental history: a question for all disciplines

- In order to build a Canal in Panama, it was necessary to create an entirely new society.
- What kind of social reorganization will be necessary in order to reorganize relations with nature in the PCW in a more sustainable way?

A topographic map of the Pacific Northwest region, showing terrain elevation and red lines delineating various watersheds. The map covers parts of the United States and Canada, with the Pacific Ocean visible in the lower right. The text is overlaid on the map.

The Integrated Management of the PCW: Challenges and Emerging Issues

IV. Some (preliminary) conclusions

Some (preliminary) conclusions,

1

- The PCW is a rural enclave surrounded South, North and East by urban areas, connected through the Transisthmian corridor.
- The PCW is an area subjected to the worst consequences of (unsustainable) urban and rural development

Some (preliminary) conclusions, 2

- **There is a critical contradiction between the sustainability demanded by APC and the unsustainability of nature/society relations around the Canal**
- **The sustainable development of the PCW as a whole is the only way to ensure the sustainable operation of the Panama Canal.**

One final conclusion

In the long run, the sustainable development of the country will be necessary to guarantee the sustainable management of the PCW, and the sustained operation of the Panama Canal.

And in the long term...

What kind of social reorganization will be necessary in order to reorganize relations with nature in Panama in a more sustainable way?

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