Master class

Historical development of large-scale irrigation in Peru & the concept of pro-poor water productivity

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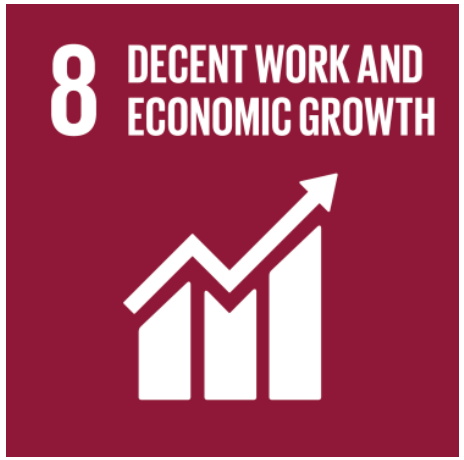
Water productivity and the SDGs

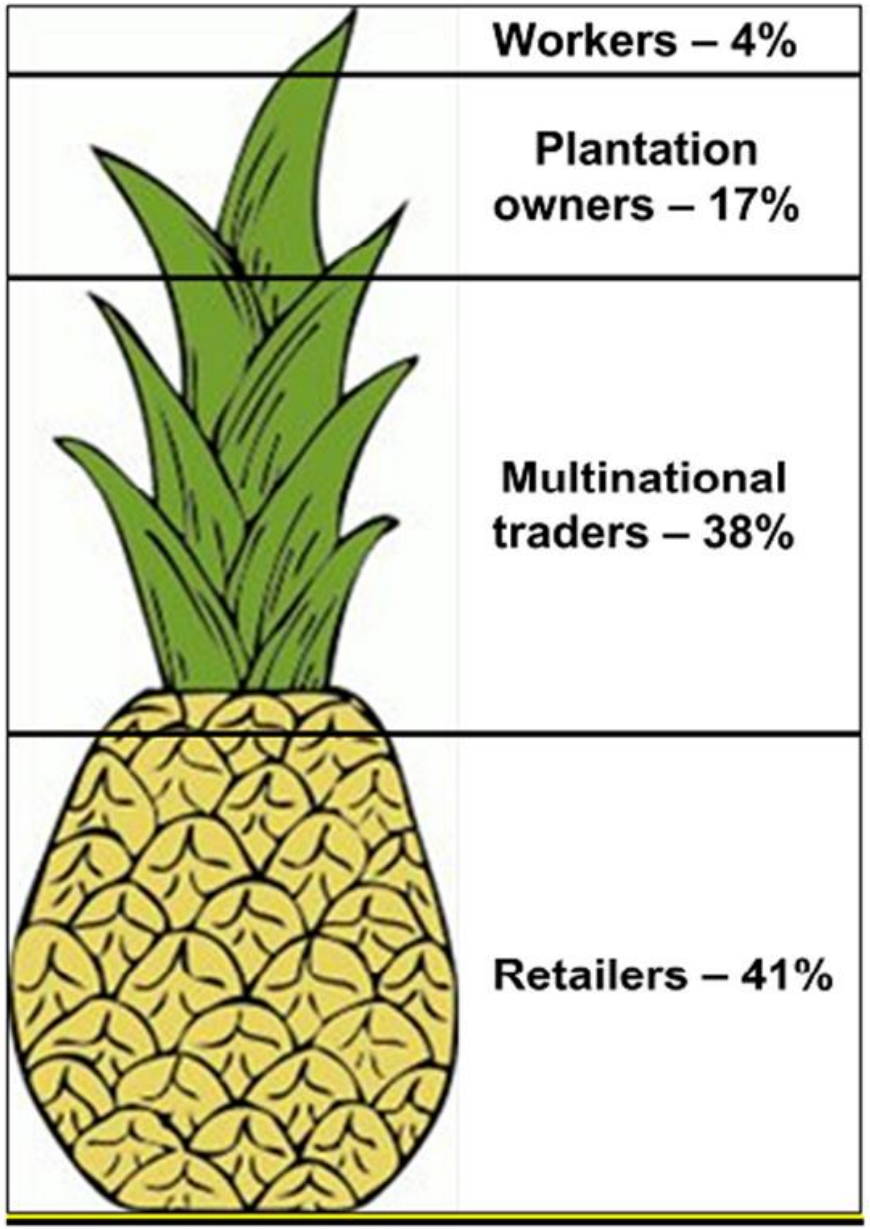


- Roughly half the world's population still lives on the equivalent of about US$2 a day
- On average income inequality increased by 11% in developing countries between 1990 and 2010.
- More than 75% of the population are living today in societies where income is more unequally distributed than it was in the 1990s.

SDG 10 target:

- By 2030, progressively achieve and sustain income growth of the bottom 40% of the population at a rate higher than the national average.

Who gets what?



Source: SOMO

Peru


N
COLOMBIA
ECUADOR
BRASIL
BOLIVIA
CHILE
Lac Titicaca
Piura
Piura valley
Chiclayo
El Brujo
Quiruvilca
Trujillo
Huacas de Moche
Territorial extension of Mochica culture
Huarmey valley
PACIFIC OCEAN
Lima
Tocra
Arequipa
Legend
Coast (0-500 masl)
Yunga (500- 2300 masl)
Quechua (2300-3500 masl)
Suni (3500-4000 masl)
Puna (4000-4800 masl)
Cordillera (4300-6768 masl)
High Selva (400-1000 masl)
Low Selva (80-400 masl)
Modern city
Archaeological site
0 100 200 300 km

Historical development of large scale irrigation in Peru

1.400.000 ha

1.600.000 ha

Moche and Chimu | Incas | Haciendas

200 BC	0	1400	1500	1600	1700	1800	1900	2000

Agrarian reform, IMT, modernization for smallholders

New irrigation for large landholdings and use of groundwater

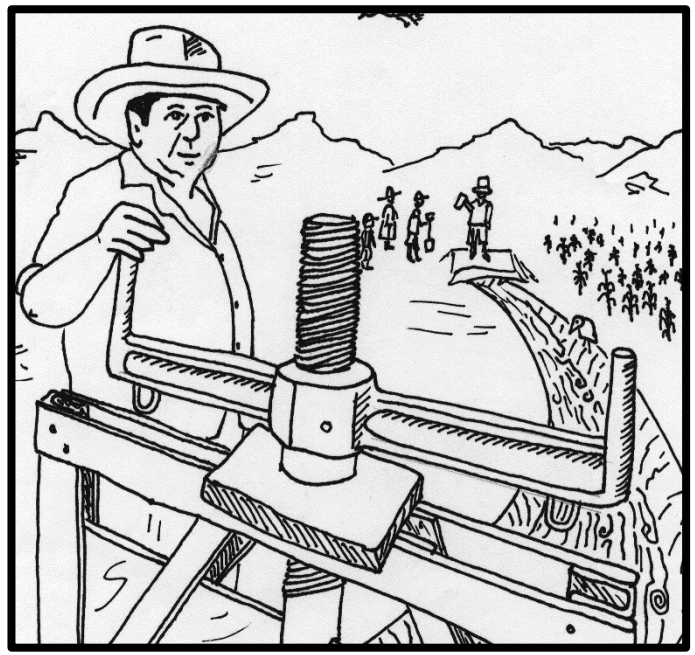
1969	1980	1990	2000	2010	2018

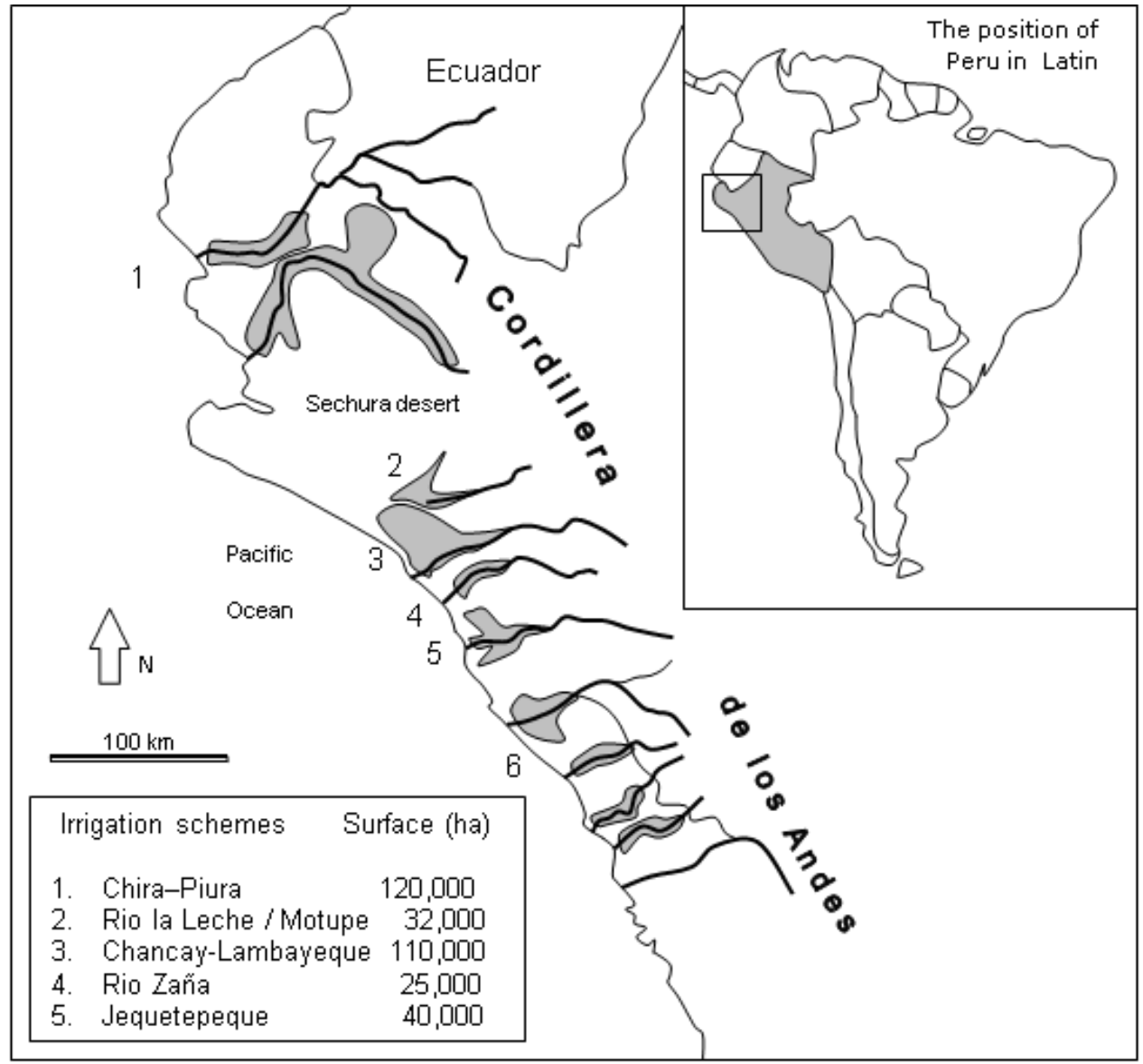
Irrigation in Peru: a long history...

Moche and Chimu:
Hydraulic societies

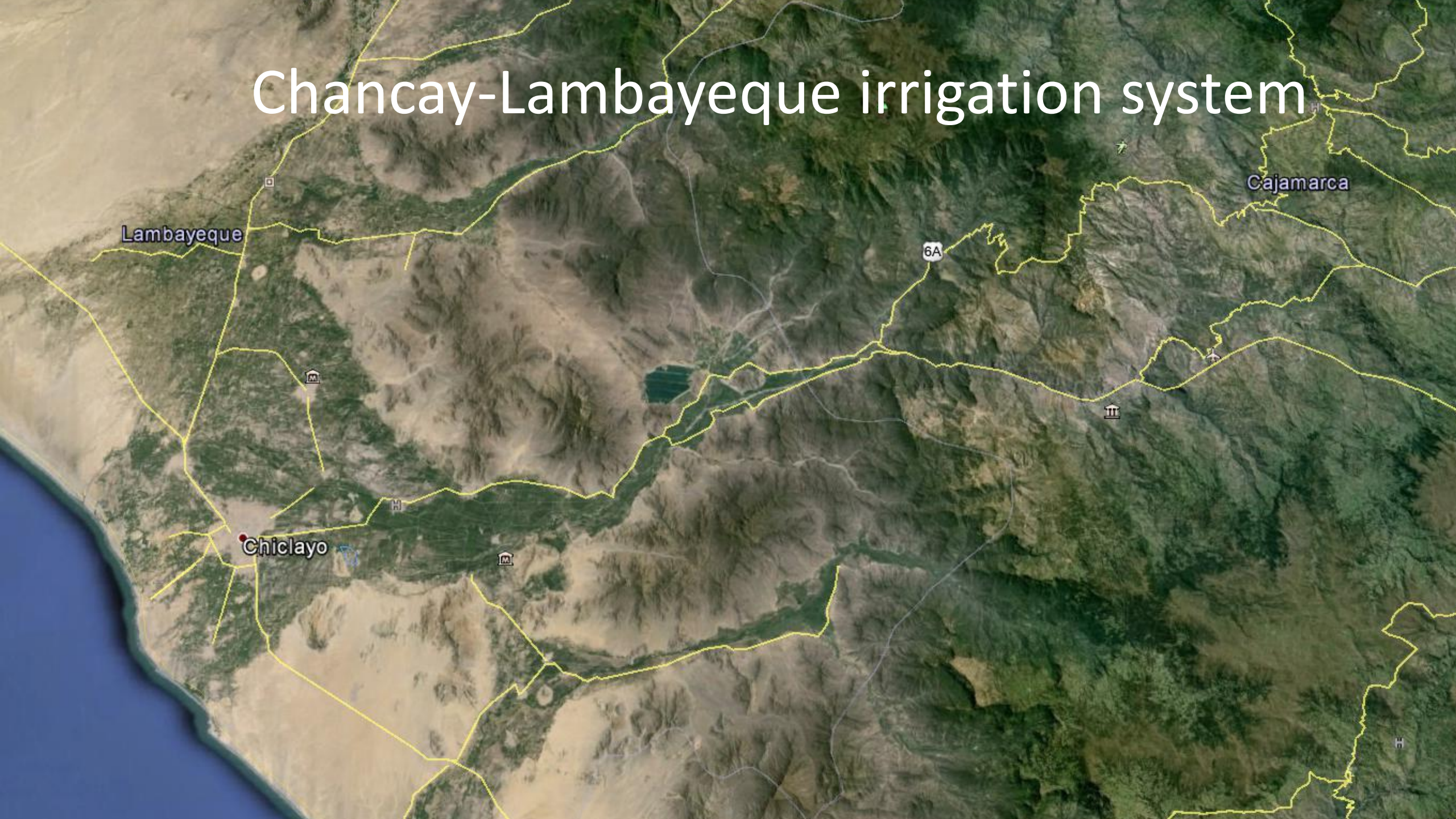
INCAS

Haciendas (1530 – 1969)



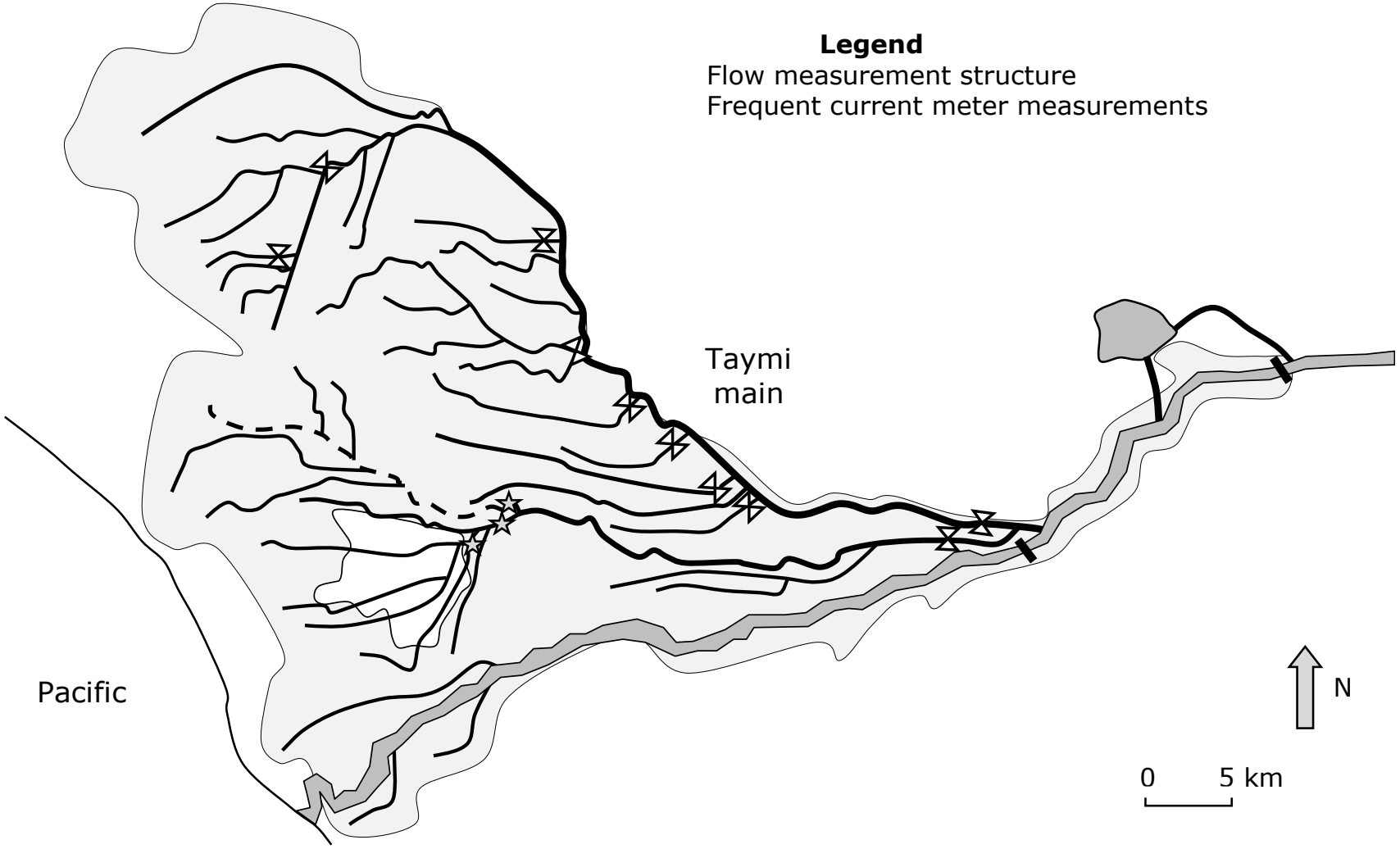


Chancay-Lambayeque irrigation system



Upper part of the river basin

Irrigation system Chancay-Lambayeque: 110,000 ha



Management transfers

1969 Agrarian Reform

Haciendas -> Min. Agriculture

PERÚ Ministerio de Agricultura y Riego

1992 Irrigation Management Transfer (IMT)

Min. Agriculture -> Water Users' Associations + their company

Successful IMT

On demand irrigation turns

Payment per volume

Volumetric water control

High levels of performance

NEW IRRIGATION FOR LARGE LANDHOLDINGS

(1990 – present)

Ica

Jequetepeque (Cierro Prieto)

CHAVIMOCHIC

CHINECAS

Chira

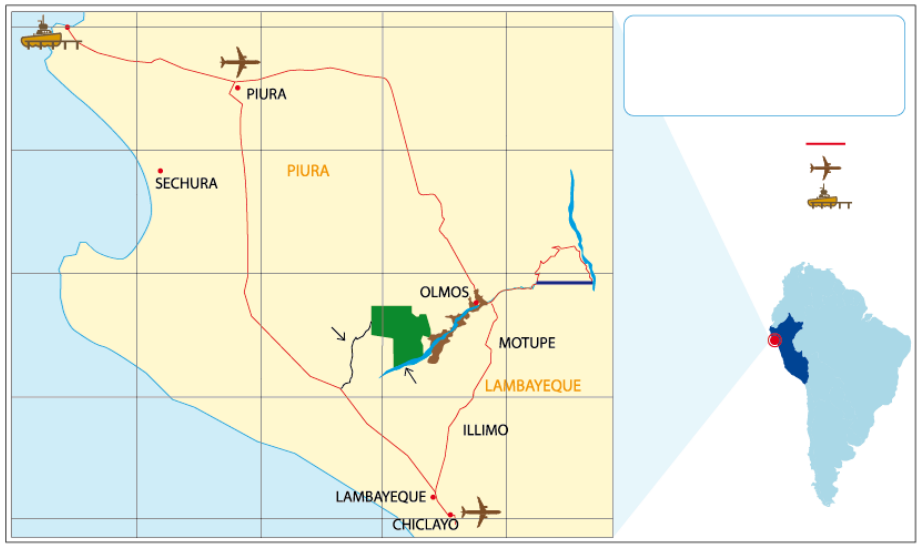
Olmos


Albert Heijn
Asperges
vers en gezond
F-43
set 2 ons
Peru
500g
1
8 710400 201168


GROENE
ASPERGETIPS
RAUW
IN SALADE
ROERBAKKEN
4 MIN.
OORSPRONG:
Peru
BB21 11 2801 09
BESTE
KWALITEIT T/M:
29-01-2017
KLASSE 1
100 g

Asparagus workers

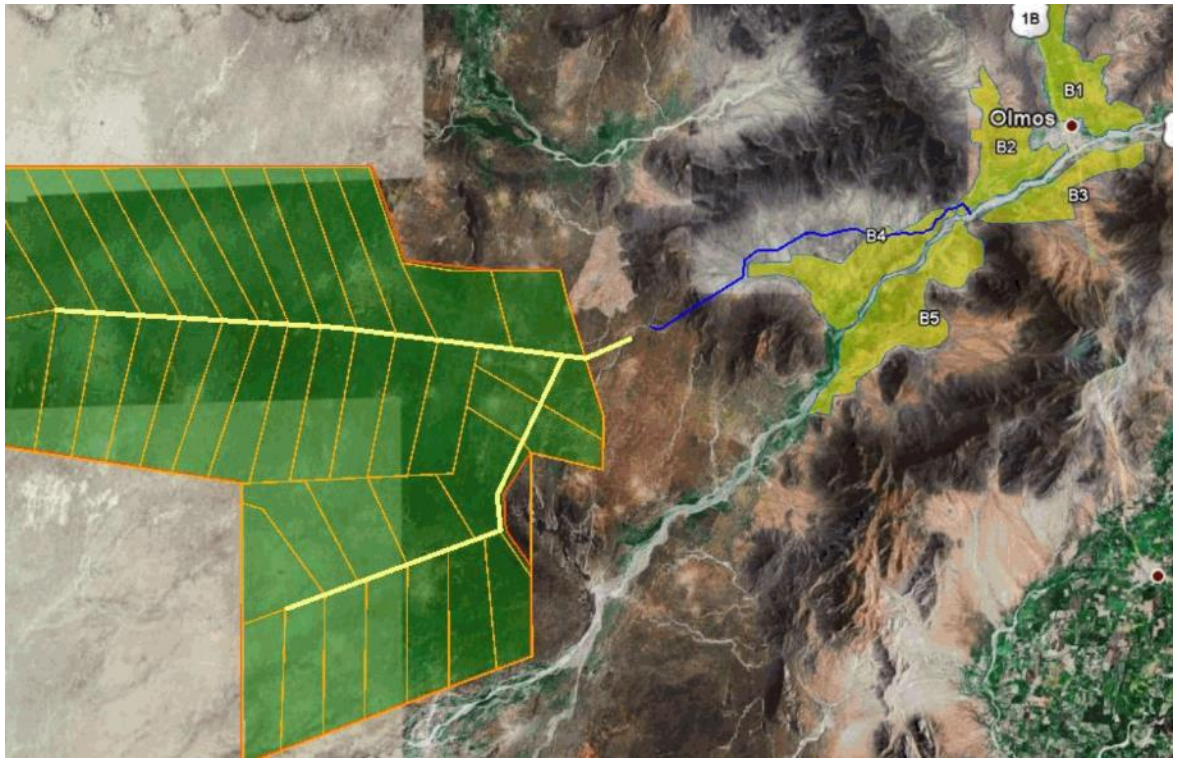
Olmos irrigation project



BOOT concession
25 years

38,100 ha sold to 10 companies:
Grupo Gloria: 15,600 ha
8 companies: 4,500 ha
Odebrecht: 18,000 ha

Very low prices: 4,723 US$/ha

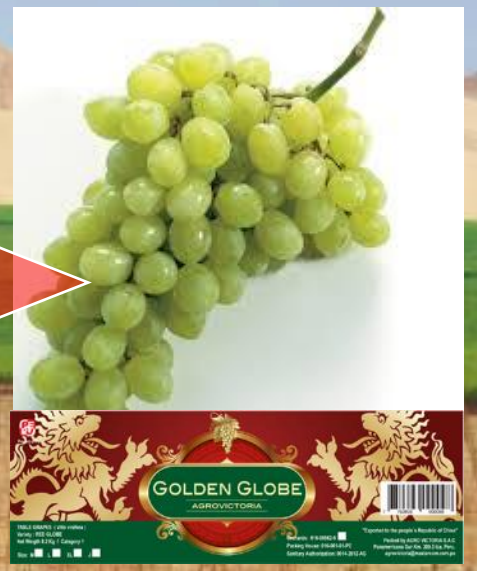


Export grape production in Ica

An example of the use of “pro-poor water productivity”

300 Mm^3/yr

680 liter/kg

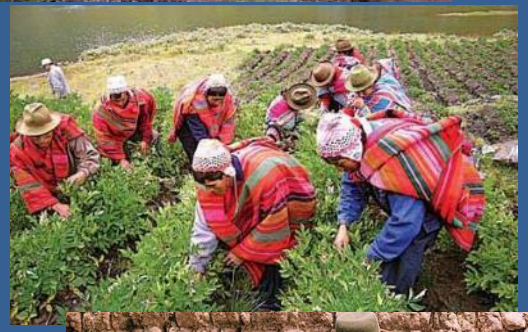


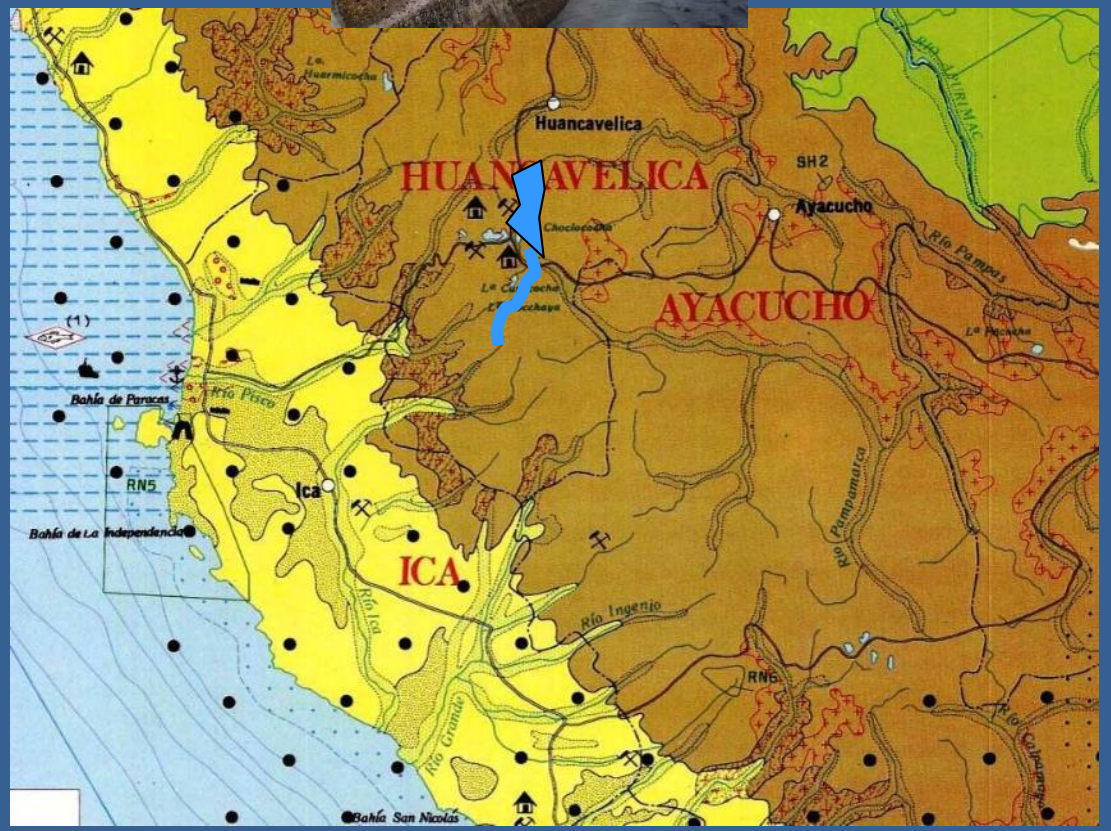
Ingahuasi project in Ica

Interbasin water transfer from poor highlands to export agriculture in the Coast

PROYECTO ESPECIAL TAMBO - CCARACOCHA

300 Mm3/yr



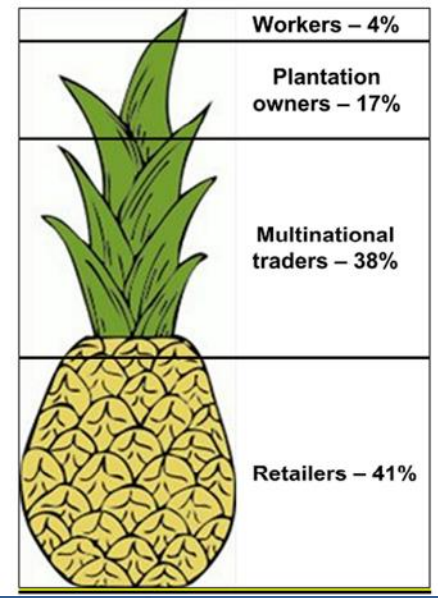

Huancavelica
HUANCAVELICA
SH2
Ayacucho
AYACUCHO
Río Pampas
Bahía de Paracas
Río Pisco
RN5
Ica
Bahía de La Independencia
ICA
Río Pampamarca
Río Ingenio
RN6
Río Grande
Río Cabanaconde
Bahía San Nicolás

Non-fungible extractions

1 m^3 of water used to produce asparagus in the desert Coast of Peru

1 m^3 of water used to produce subsistence crop in Andean mountains

Pro-poor water productivity



	Asparagus in coast	Subsistence highland Agriculture
Net income for investor/land owner per hectare (US$/ha)	**8,900**	**470**

Pro-poor water productivity:
Economic value generated for poor people by the consumption of a certain volume of water in a watershed

Any water productivity indicators should take into account:

- **Ecological effects** caused by the use of water (and energy being used for pumping)
- Beneficial use of **return flows** (Dry and Wet water savings)
- **Cultural values** of water and rationale in the local farming system
- Possible **alternative economic uses** (by certain group)
- **Distribution of the costs and benefits** of the water consumption

Historically in Peru: water productivity increased, but pro-poor water productivity decreased

Thank you for your attention!