

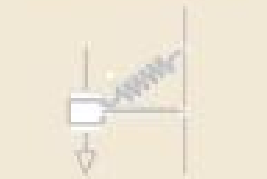
Farmland Consolidation in Korea

Wonjun CHOI, Korea

Symposium on Modern Land Consolidation

Volvic, France, September 10 - 11, 2004

FIG Commission 7 Annual Meeting 2004



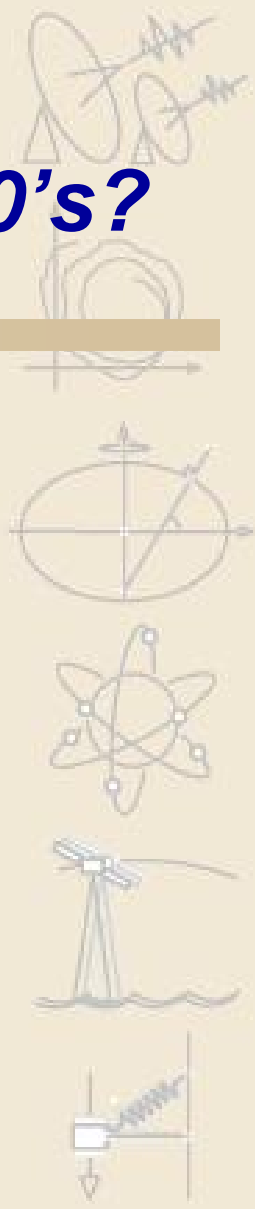
$$\begin{aligned}v+l &= Ax \\ v^T P v &\rightarrow \min \\ \hat{x} &= (A^T P A)^{-1} A^T P l\end{aligned}$$

Contents

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 - § Socio-political backgrounds
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Why Land Consolidation in 1970's?

- ✓ Strong policy for food security
- ✓ Stronger policy for industrialisation
- ✓ People left for cities for jobs
- ✓ Less farmers, Bigger farms, More crops
- ✓ Needs for using farming machinery
 - § Bad condition for machine farming
- ✓ Insufficient farm infrastructure
 - § Irrigation and drainage



$$v+i = Ax$$
$$vPv \rightarrow \min$$
$$A = (A_1 \dots A_n) \quad P = (P_1 \dots P_n)$$

Why Land Consolidation?

- ✓ Farmland decreased for residential use
- ✓ Rural population rapidly decreased

Year	2003	2000	1995	1990	1985	1980
Agricultural land (km ²)	18,560	18,888	19,853	21,088	21,444	21,958
Rural Population (Million)	3.5	4	4.9	6.7	8.5	10.8

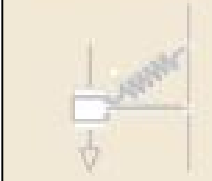
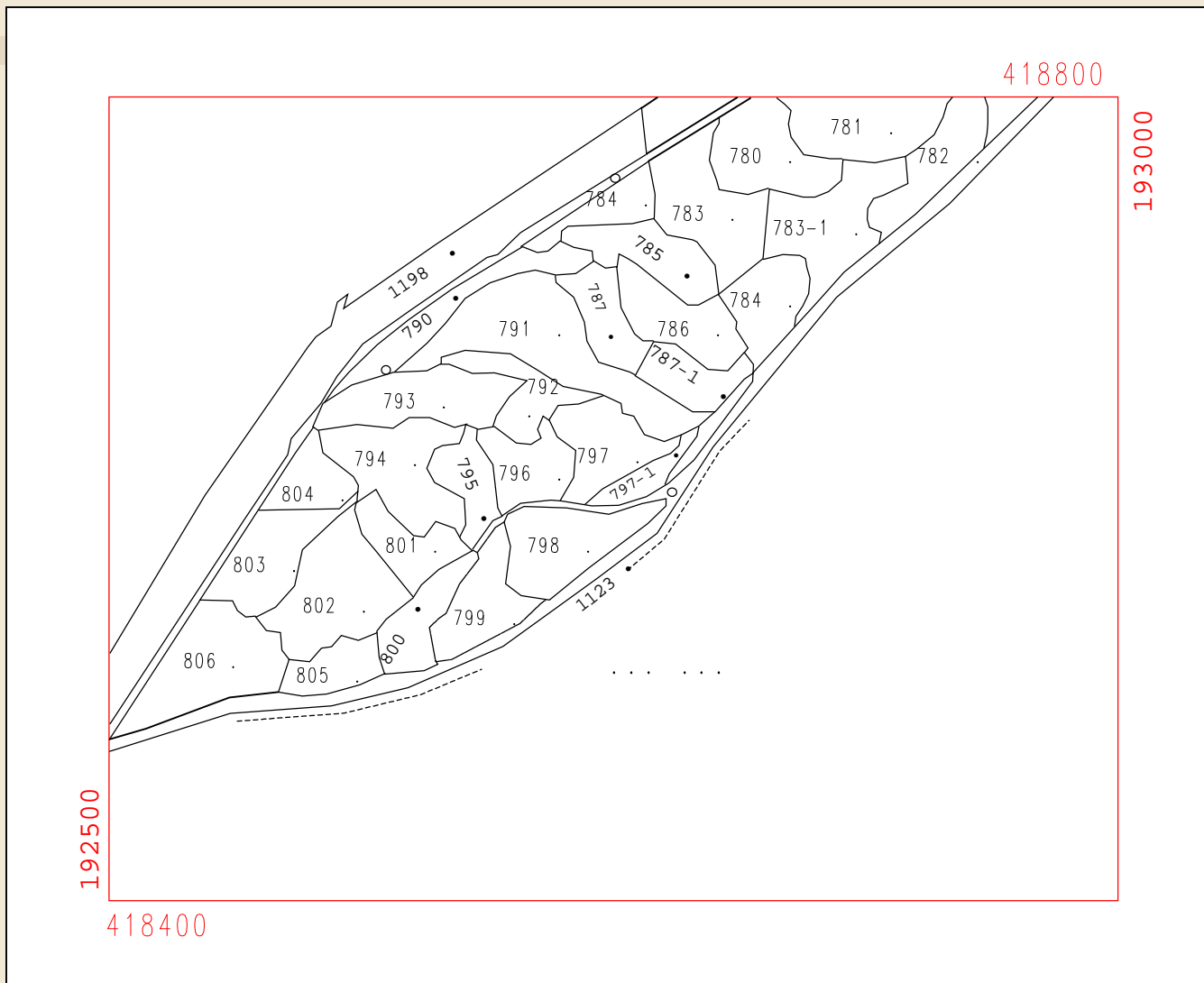
Why Land Consolidation?

✓ Farm scale increased

(Million households)

Year	Total	Less than 1.5 ha	More than 1.5 ha
1970	2.4	2.1	0.3
1980	2.2	1.8	0.4
1990	1.8	1.4	0.4
2000	1.4	1.0	0.4

Agricultural Parcels

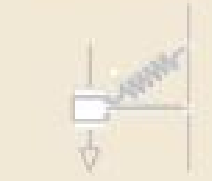


$v+i = \Delta x$
 $vPv \rightarrow \min$
 $v = (v_1, \dots, v_n)^T$

onsolidation

Agricultural policies in 1970's

- ✓ 2 methodologies for food security
 - § Farmland manipulation
 - ⇒ Provide infrastructure
 - ⇒ Change topography of farmland
 - § Improvement of farming techniques
 - ⇒ Fertilizer and manure
 - ⇒ Raising knowhow



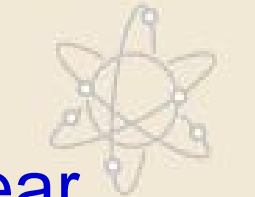
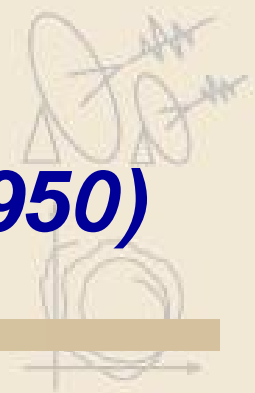
$$v+l = Ax$$
$$vPv \rightarrow \min$$
$$A = (A^T A)^{-1} A^T P$$

Legal Measures

- ✓ Land Reform Program in 1950
⇒ land re-distribution
- ✓ Farmland Improvement Project Act in 1961
⇒ oriented to cultivate wasteland
- ✓ Rural Modernization Act in 1970
⇒ practical background of land consolidation
⇒ amended 12 times, abolished in 1995
⇒ succeeded by other laws

Farmland Reform Program(1950)

- ✓ Remove feudal system
 - § A few landlords own majority of farmland
 - § 50% of crops for rent
 - § Aiming Land to the tiller
- ✓ Many mutations & transactions within a year
 - § Create scattered parcels
 - § Inaccurate cadastral surveying



$$v+i = Ax$$
$$vPv \rightarrow \min$$
$$A^T P A^{-1} P A$$

Rural Modernization Act in 1970

v contents

- § Rice price support**
- § Farm credit and subsidies**
- § Technological research services**
- § Rice import protection**
- § Environment improvement**
 - ⇒ Living environment – housing, public facilities**
 - ⇒ Farming environment – land consolidation, farming infrastructure**

Farmland Consolidation

✓ Project initiation

§ 50~80% of paddy owners' agreement in a village

✓ Bodies project execution

§ Korea Agriculture & Rural Infrastructure Corp.

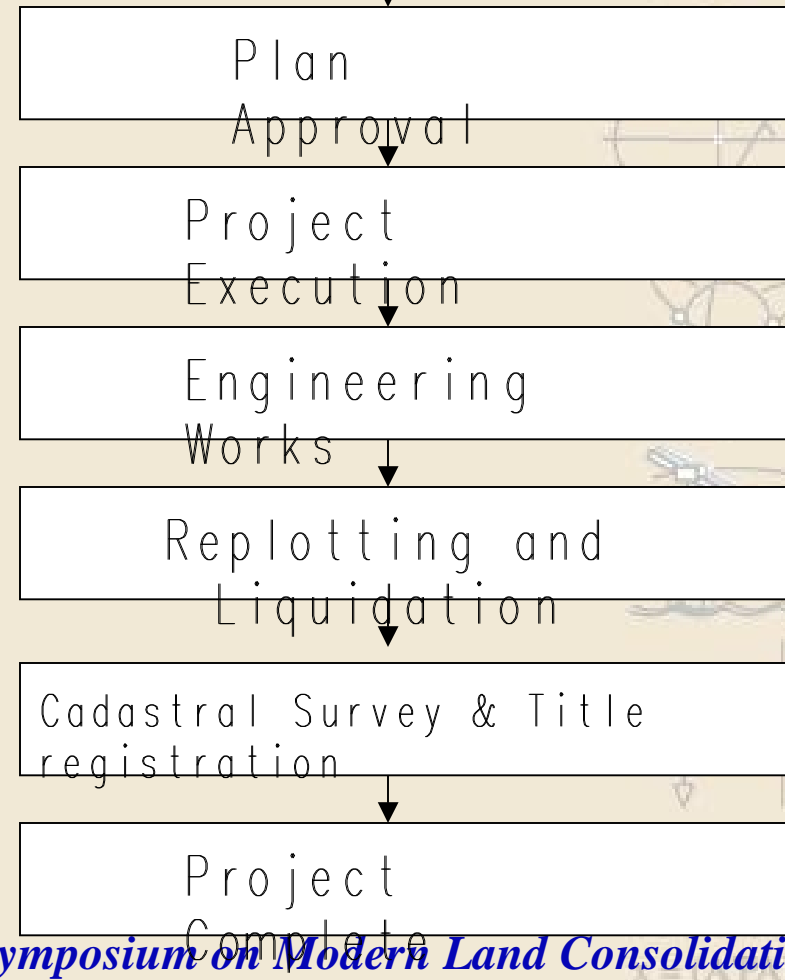
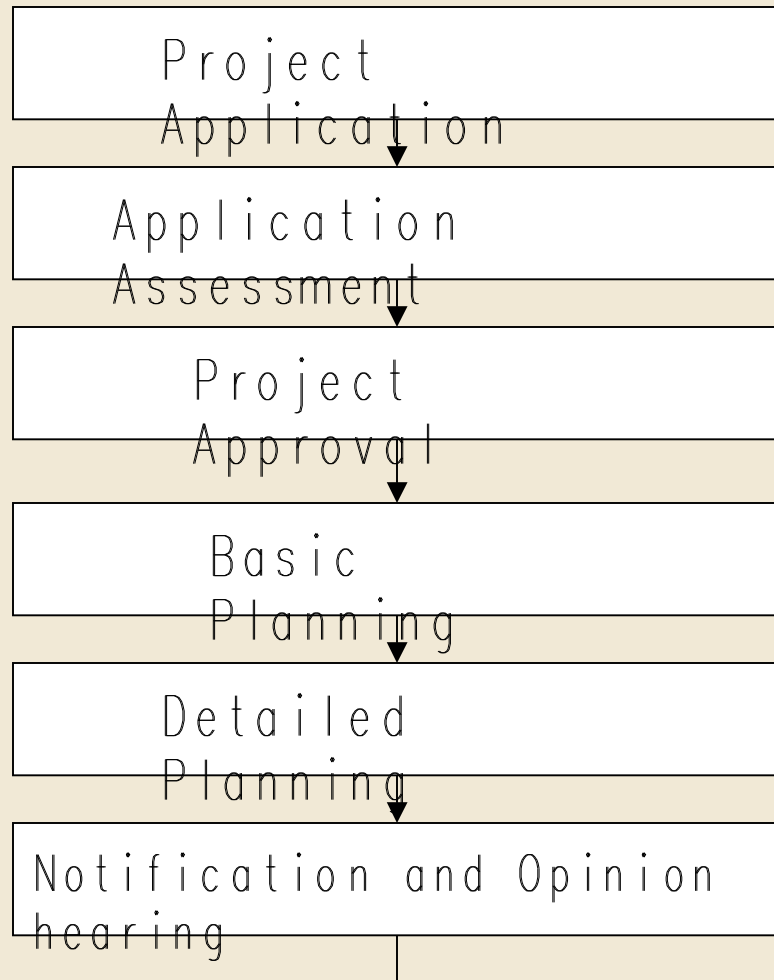
⇒ Government owned company

⇒ Farmland consolidation and rural infrastructure

§ Municipal government

§ Private person – landowners

Consolidation Procedures



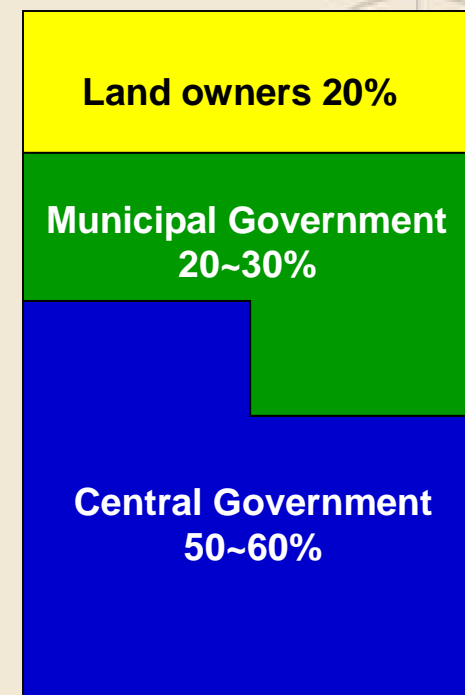
Farmland Consolidation

✓ Financing

- § Central government
50~60%
- § Municipal government
20~30%
- § Land owners
20% (bank loan)

ü Average cost - 2.4 million USD/km²

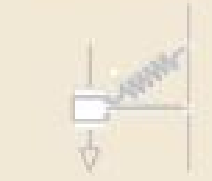
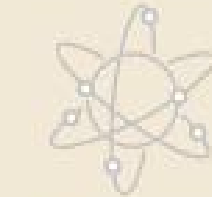
ü Average duration - 1~2 year



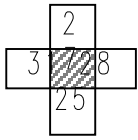
Farmland Consolidation

✓ Farmland statistics (2000)

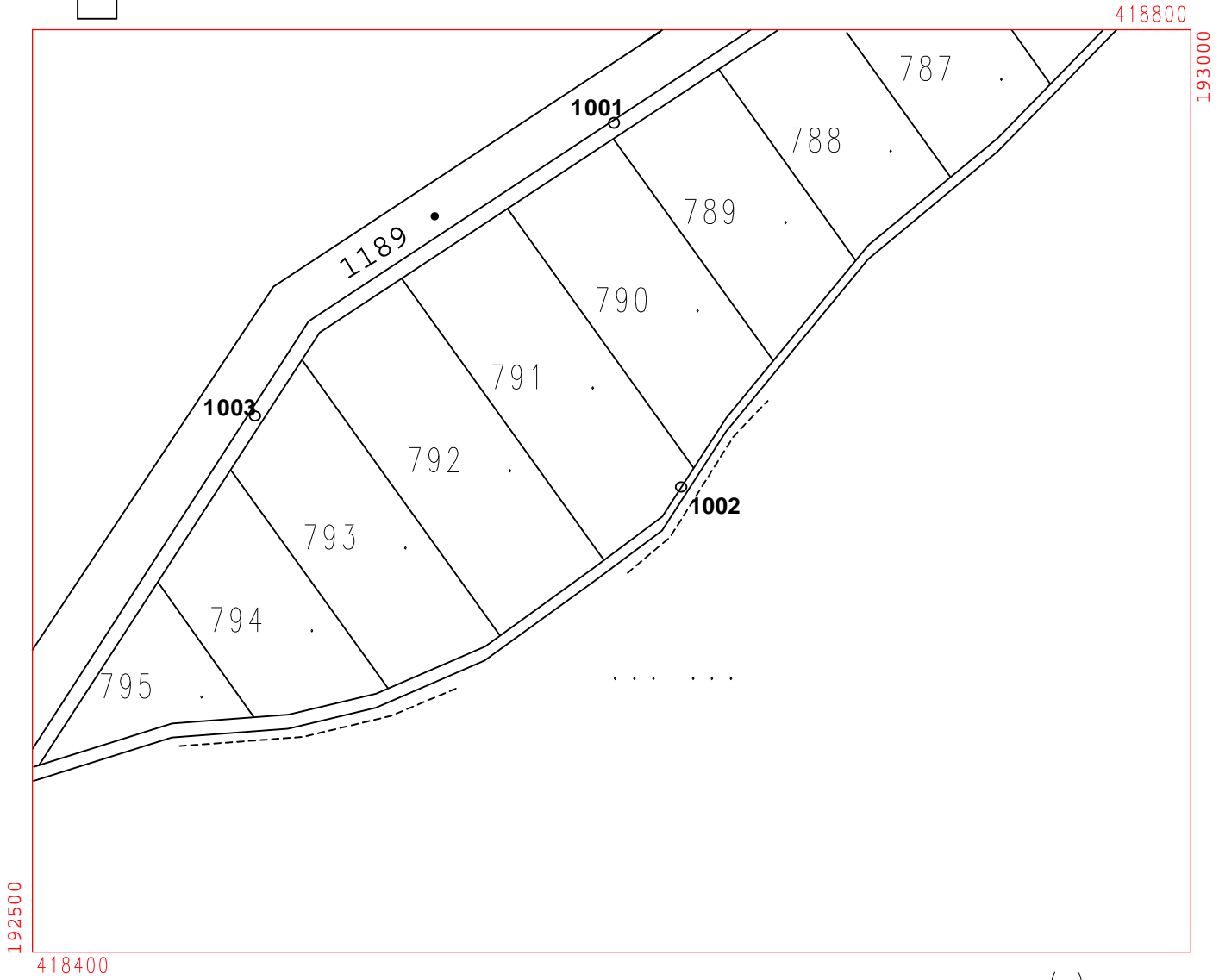
- § Total agricultural land – 18,888 km²
- § Rice paddy – 11,490 km²
- § Paddy consolidated – 6,289 km²
- § Land for other crops – no consolidation



$$v+l = Ax$$
$$vPv \rightarrow \min$$
$$A = (v+l) \cdot P$$



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Concluding Remarks

- ✓ Farmland consolidation started with
 - § “Rural Modernization Act” in 1970
- ✓ Consolidation purposes
 - § Consolidate fragmented plots
 - § Enlarge plot size
 - § Support sufficient irrigation for rice
 - § straighten curved paths, waterways and levees

Concluding Remarks

✓ Main Characteristics

- § project term - 1 year usually – easy agreement
 - ⇒ mutual benefit - farmers and governments
- § Only consolidate rice paddies
 - ⇒ Policy of rice self-sufficiency
- § Government subsidy – 80%
- § Together with living environment improvement

Concluding Remarks

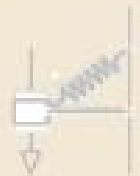
✓ Non-consolidated paddies

- § Sporadically exist in the areas of higher slopes
- § Low economic benefit after consolidation
- § Strategies developed.

✓ Non-paddy farmland

- § consolidation methodology to be researched
- § maximal use of arable land (20% of Korean territory)

Thank you



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