



UNIVERSITÉ
LAVAL

Faculté de foresterie, de géographie et de géomatique
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History Session, 4 May 2016

Presented at the FIG Working Week 2016,
May 2-6, 2016 in Christchurch, New Zealand

The Tragedy of Armero, Colombia : *Management of land rights in the aftermath of the Volcanic Eruption of the Nevado del Ruiz in 1985*

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FIG Working Week 2016

CHRISTCHURCH, NEW ZEALAND 2-6 MAY 2016

Recovery

from disaster

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RESEARCH PROJECT

- **Master's Thesis**
 - Quebec City and Bogotá
 - In collaboration with the Instituto geográfico Agustín Codazzi
 - Funding provided by Dr. Nicholas Chrisman





INTRODUCTION

- **Tragedy of Armero**
 - November 13th, 1985 = Eruption of the Nevado del Ruíz volcano
 - Destruction of 90% of the urban area
 - Death of 85% of the population = approximately 23 000 people
- **Reestablishment Process**
 - Management of Land Rights
 - Relocation of Survivors
 - Economic Compensation

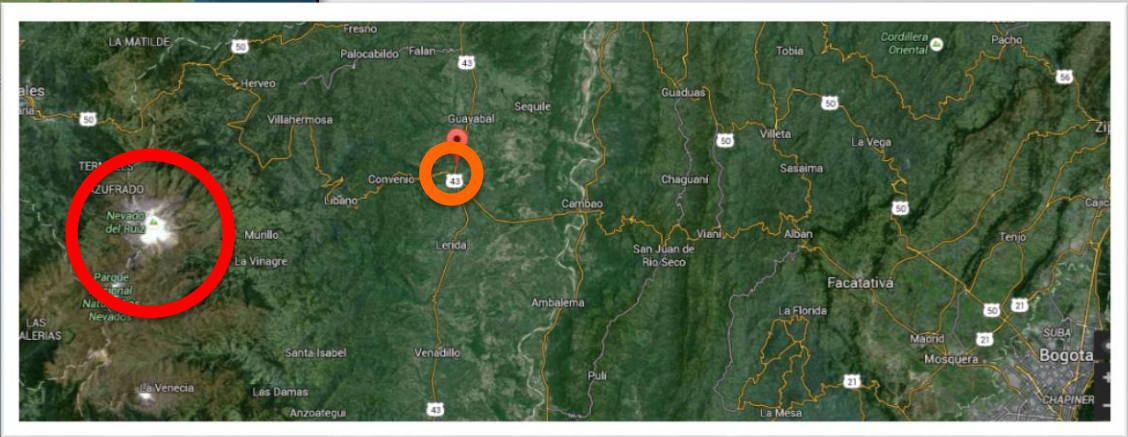
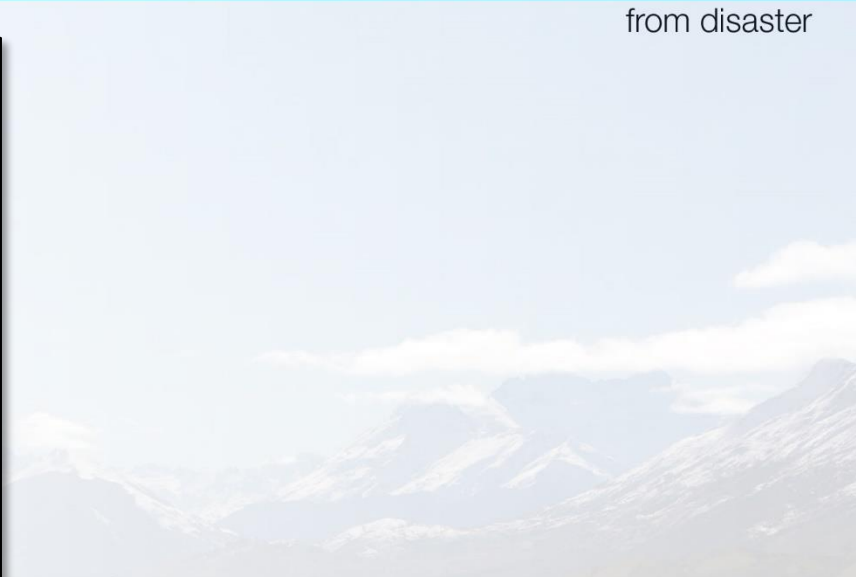


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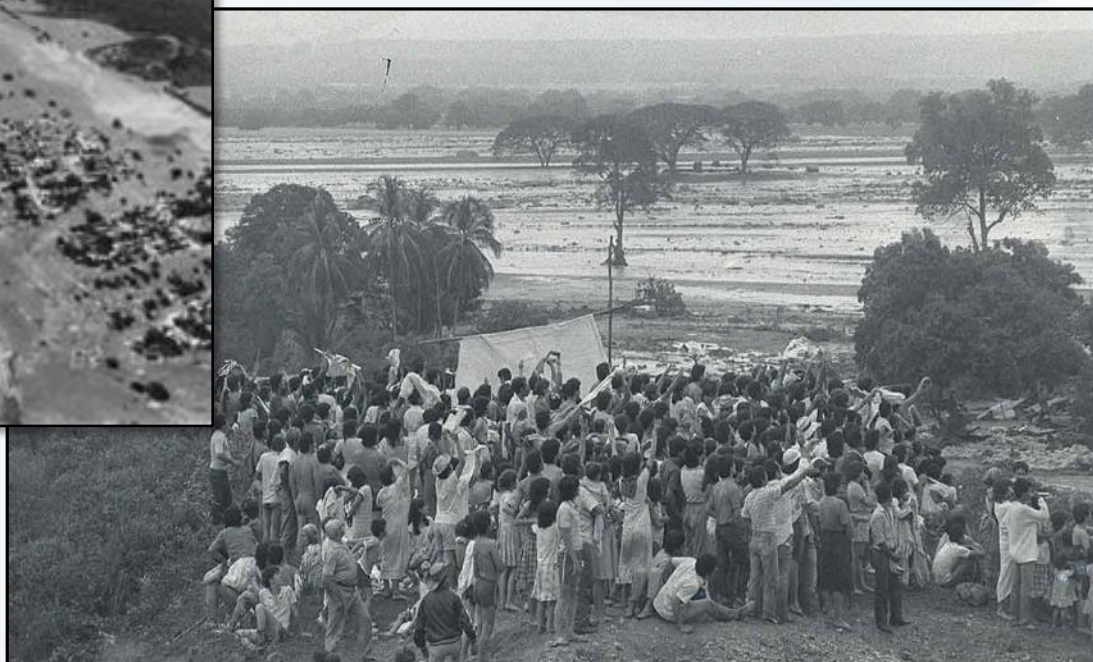
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https://fr.wikipedia.org/wiki/Éruption_du_Nevado_del_Ruiz_en_1985#/media/File:Armero_ruiz_lahar.gif



http://www.eltiempo.com/Multimedia/galeria_fotos/colombia6/GALERIAFOTOS-WEB-PLANTILLA_GALERIA_FOTOS-12375485.html



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1984



1985



Ortofotomosaico, escala 1:50.000. IGAC



SITE HISTORY

- **Third major volcanic eruption (documented)**
- **Death toll (victims)**
 - 1595 = 500 to 1000
 - 1845 = 1000
 - 1985 = 25 000

Top 10 most important Volcano disasters for the period 1900 to 2013
sorted by numbers of killed at the country level:

Country	Date	No Killed
Martinique, Volcanic eruption	8-May-1902	30,000
Colombia, Volcanic eruption	13-Nov-1985	21,800
Guatemala, Volcanic eruption	24-Oct-1902	6,000
Indonesia, Volcanic eruption	1909	5,500
Indonesia, Volcanic eruption	May-1919	5,000
Guatemala, Volcanic eruption	1929	5,000
Papua New Guinea, Volcanic eruption	15-Jan-1951	3,000
Cameroon, Volcanic eruption	24-Aug-1986	1,746
Indonesia, Volcanic eruption	3-Jan-1963	1,584
St Vincent and The Grenadines, Volcanic eruption	7-May-1902	1,565

EM-DAT. (2013). *The International Disaster Database –*
http://www.emdat.be/disaster_profiles/index.html



CURRENT LAND USE – 2014

- **Agriculture**
 - Private land grabbing for pasture
 - Fertile Soil = Volcanic Dust
- **Memorial**
 - Public duty of remembrance



<http://www.elespectador.com/noticias/actualidad/vivir/reconstruyendo-lazos-de-armero-articulo-392140>



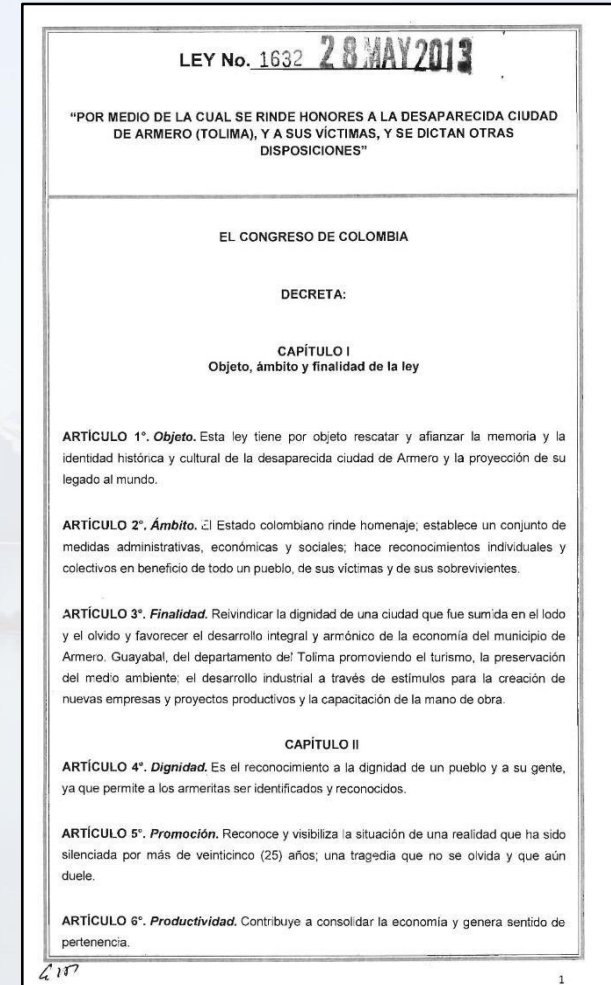
RESEARCH PROBLEM

- **Disaster Risk Reduction Approach**
 - Prevention – Emergency – Recovery
- **Resettlement**
 - Relocation of People = neighbouring towns
 - Survival of former land rights = on-site
- **Economical Support**
 - No financial compensation (= expropriation) – excepted people relocation
 - 82% relocated by their own means



AT THE SAME TIME

- **Colombian Government showing interest to create a Memorial Site.**
 - Ley 1632 (28 May 2013)
- **Question:**
 - Is there always existing land rights?
 - Who owns what?
 - Who to compensate?





METHODOLOGY

- **Cadastral and Land Register Analysis**
 - Cadastral Hole
- **Land Data Sheet**
 - 17 000 photographs

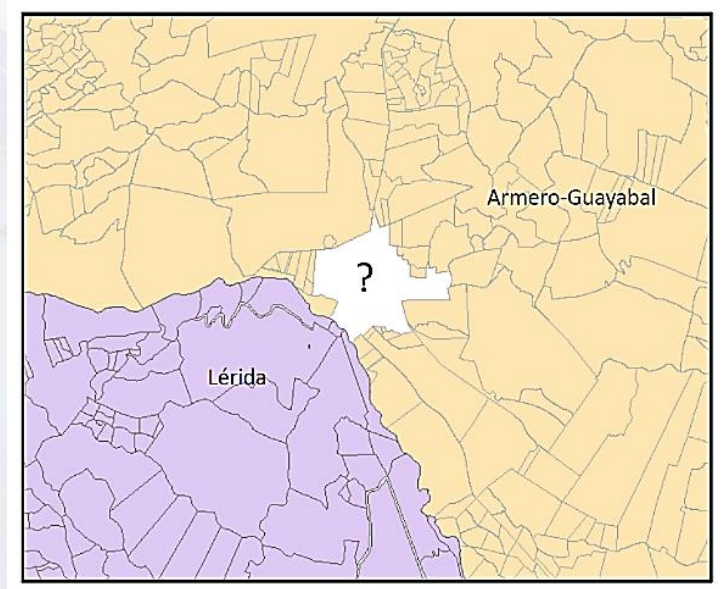




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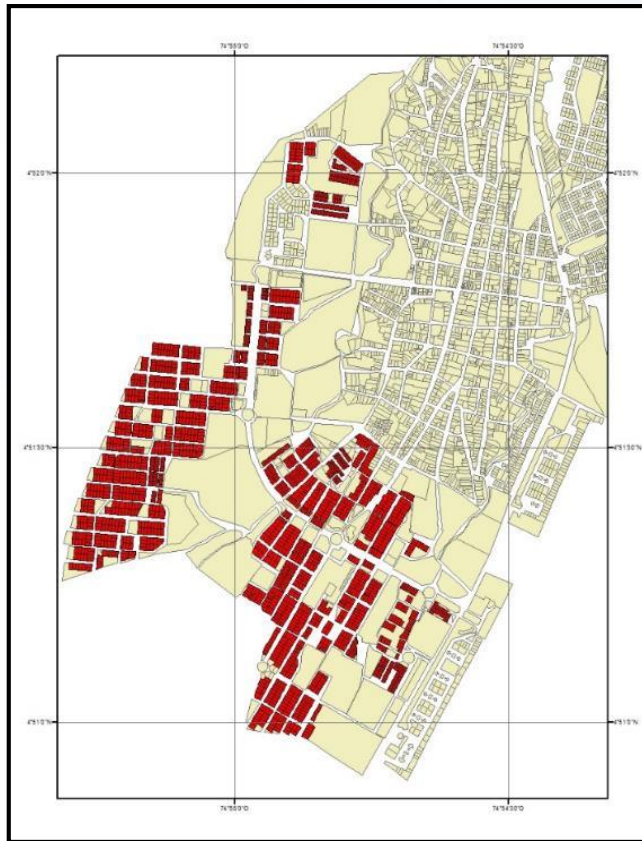
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Recovery

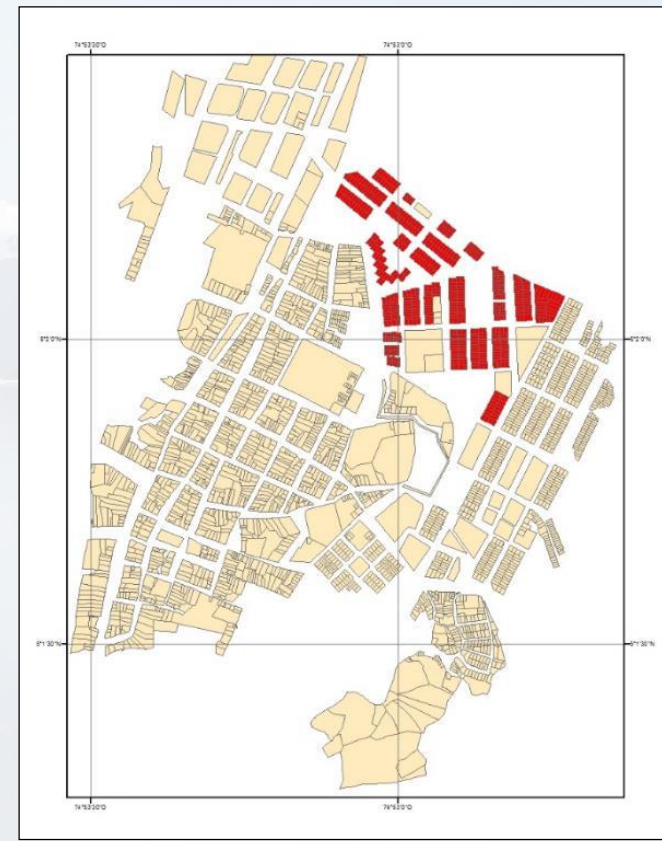
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RELOCATION – REHOUSING

Lérida



Armero - Guyabal





REBUILDING THE 1985 CADASTER





REBUILDING THE 1985 CADASTER

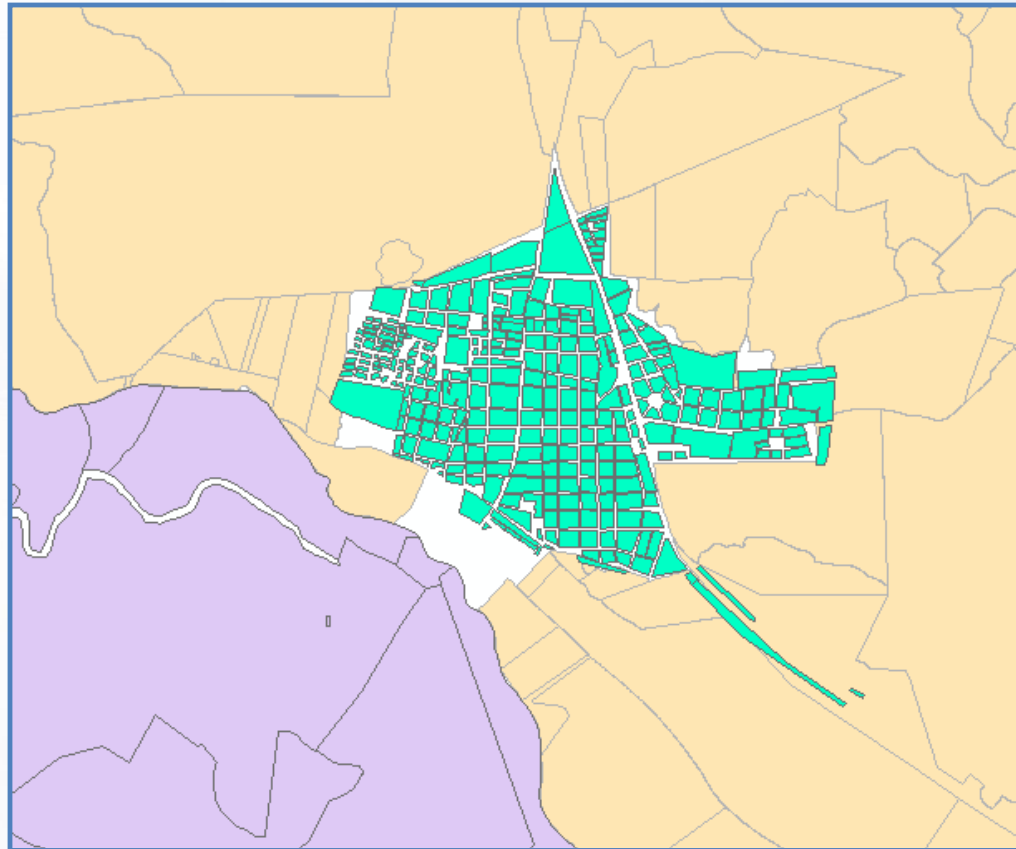


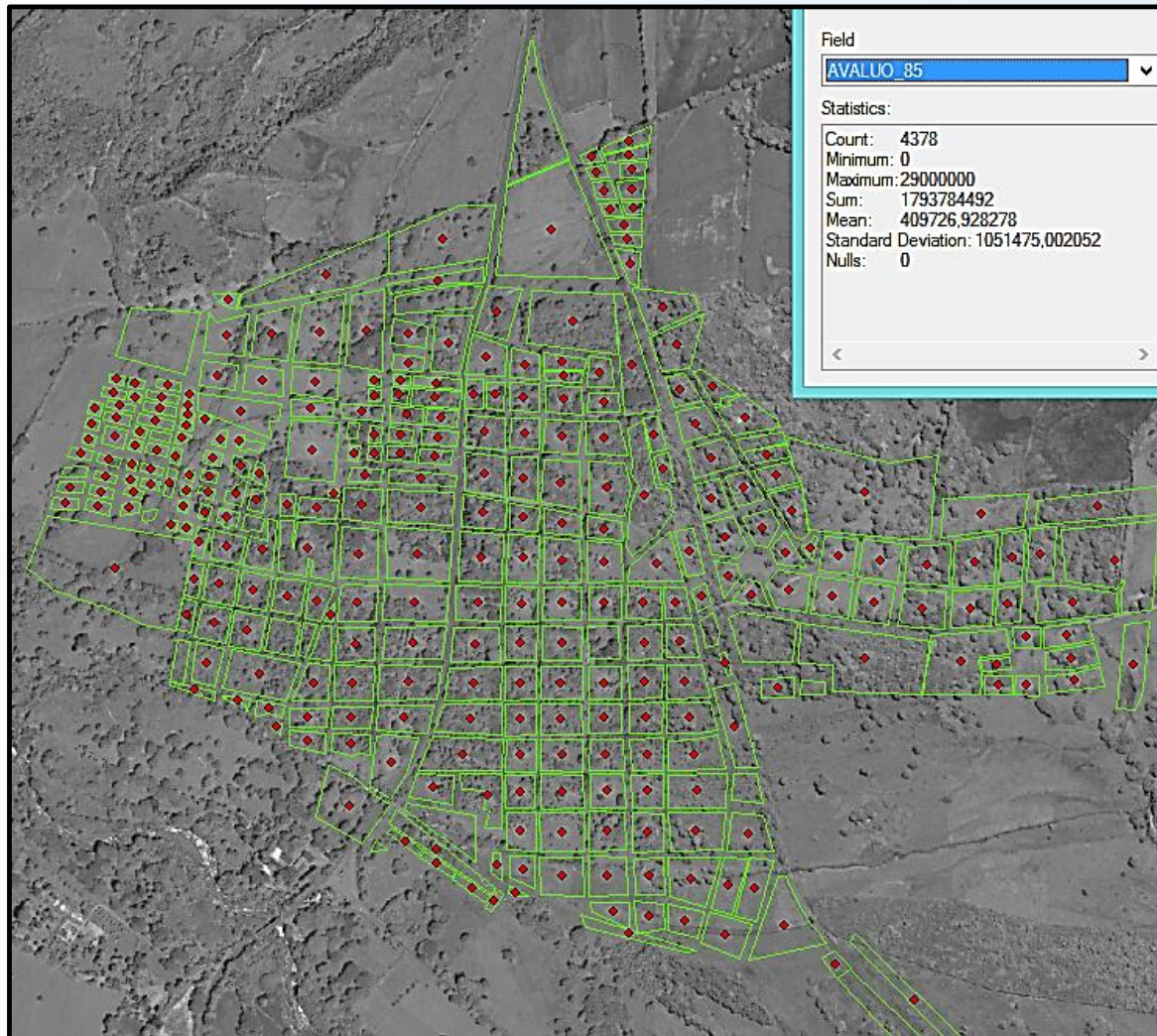


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WHAT HAVE WE LEARNED FROM THIS DISASTER?

- **Relocation**

- Surviving people, but also land rights
- Land rights don't die – They are passed upon inheritants.

- **Recovery**

- Social issue, more than material matter
- Recreating society, not only displacing people



CONCLUSION

- **Important Warning for Historical Analysis**
 - Be careful not to (over-)interpret this case study with today's knowledge in DRR
 - Results embedded in a specific time-period and geographical context
- **Recovery**
 - Social issues, with all citizen participation
- **Armero 1985**
 - *The resettlement process was based in the rehousing of people but not in the reestablishment of rights.*