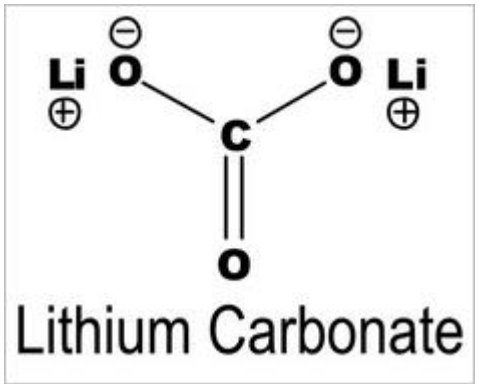
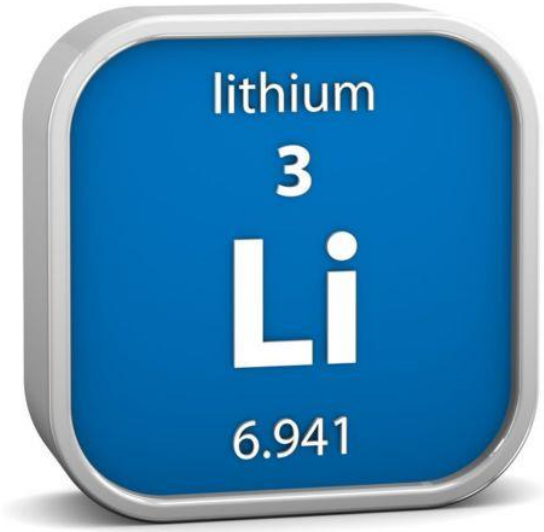
LITHIUM BRINES:
HISTORY & EXPERIENCE
PUZZLE MODEL
April 10th, 2018

José de Castro

Experience with Lithium production





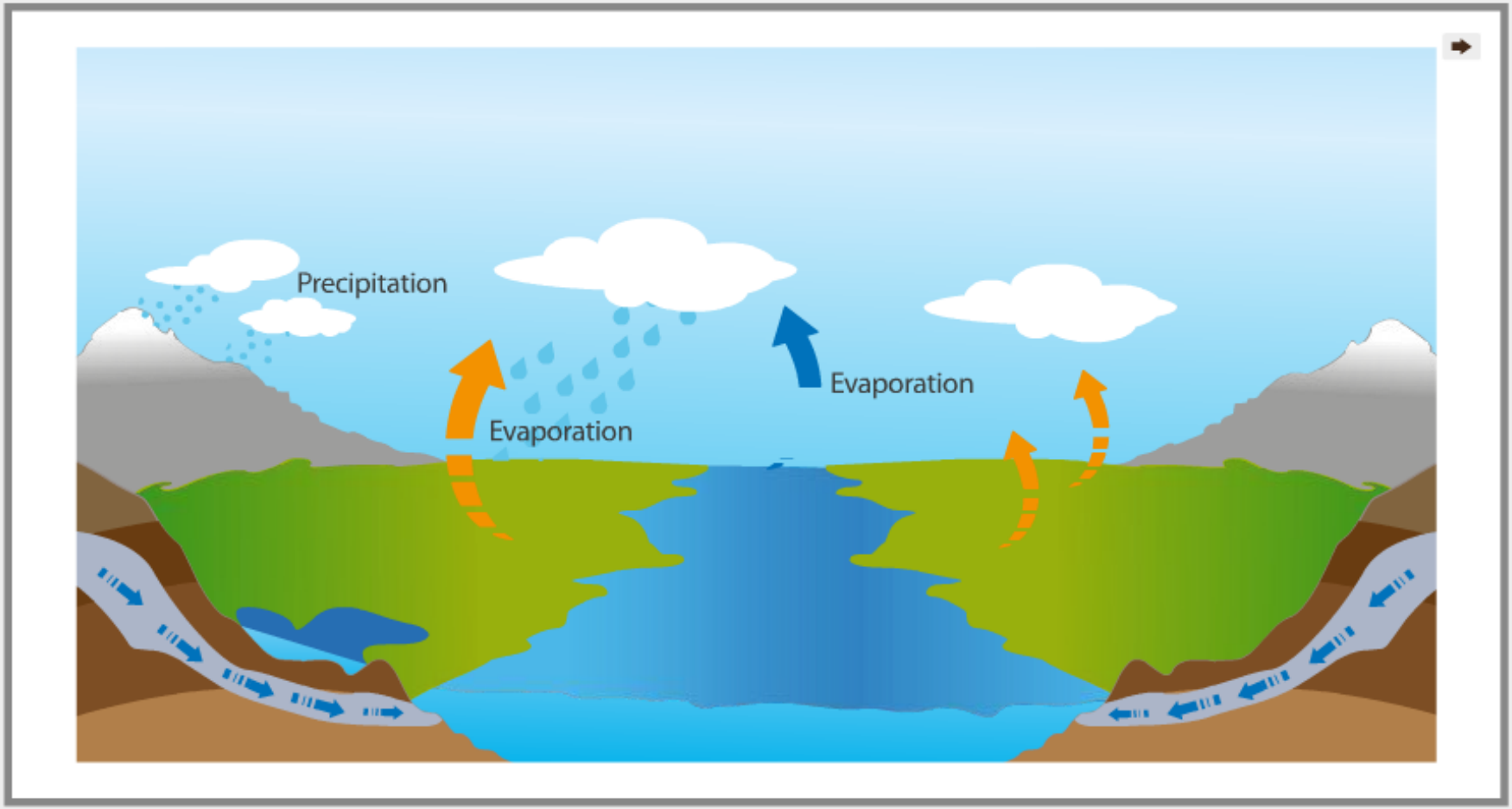
- I was born in the middle of Lithium Triangle, Salta Argentina (?)
- Chemical Engineer 22 years in Mining
- Ponds & Lithium Carbonate Plant Minera del Altiplano (FMC), piloting, engineering, start up, operation and moth ball (1997)
- Executive Manager Gold Mining
- General Manager Orocobre (2009)
- So, 2 start up and operation Lithium brine productions in the world
- Country Manager (SdJ, Borax Argentina, South America Salar) (2012-2015)
- COO NRG Metals Inc 2017

Drivers in the History: Puzzle Model

- ***Resource in Brine: Concept***
- ***Processing: Chemical Industry***
- ***Business: Mining Leadership***
- ***Local Complexities: Perception***

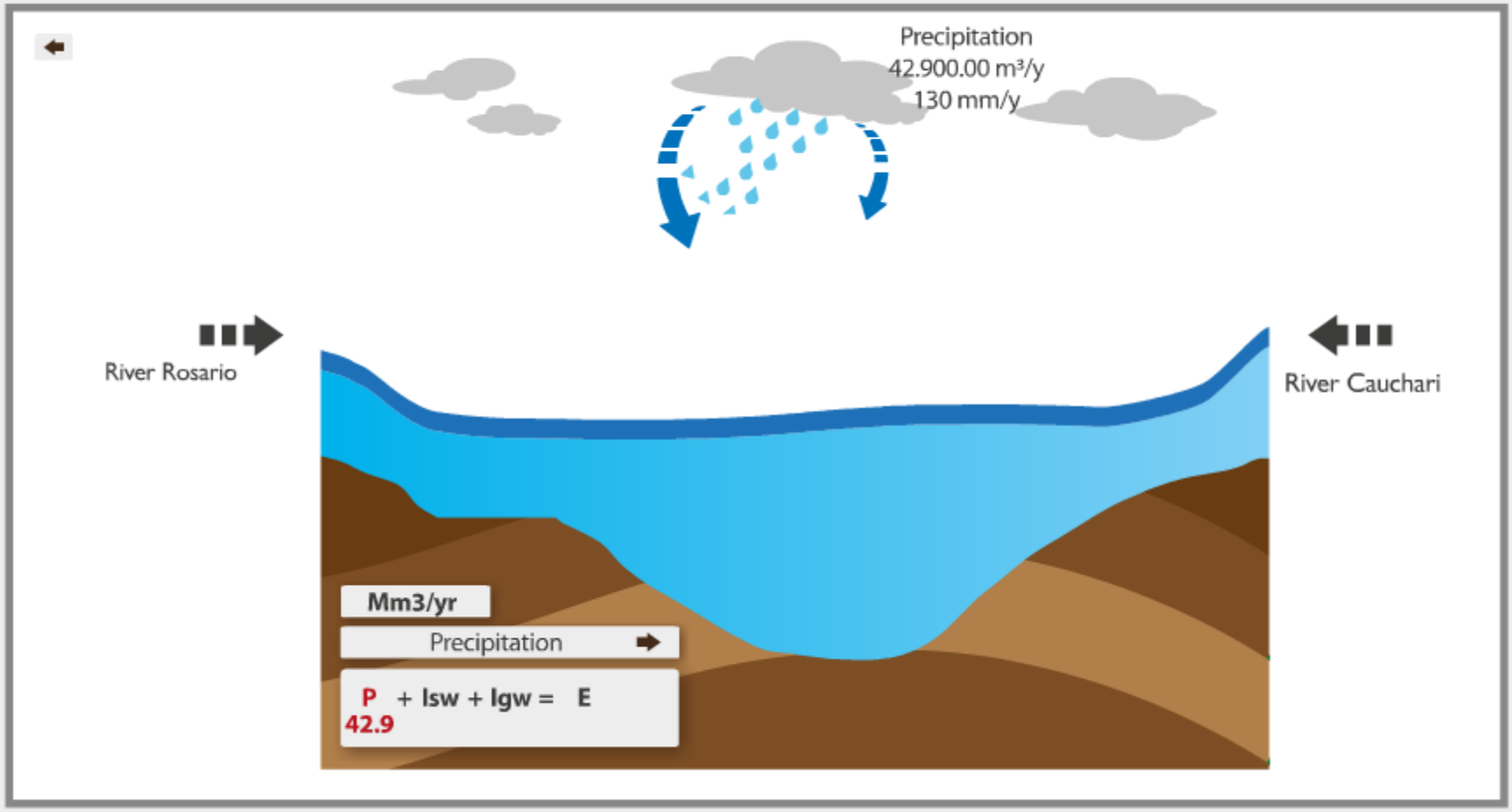
Resources in Brine: Concepts
Closed Basin

Cycle



Resources in Brine: Concepts
Closed Basin

Cycle



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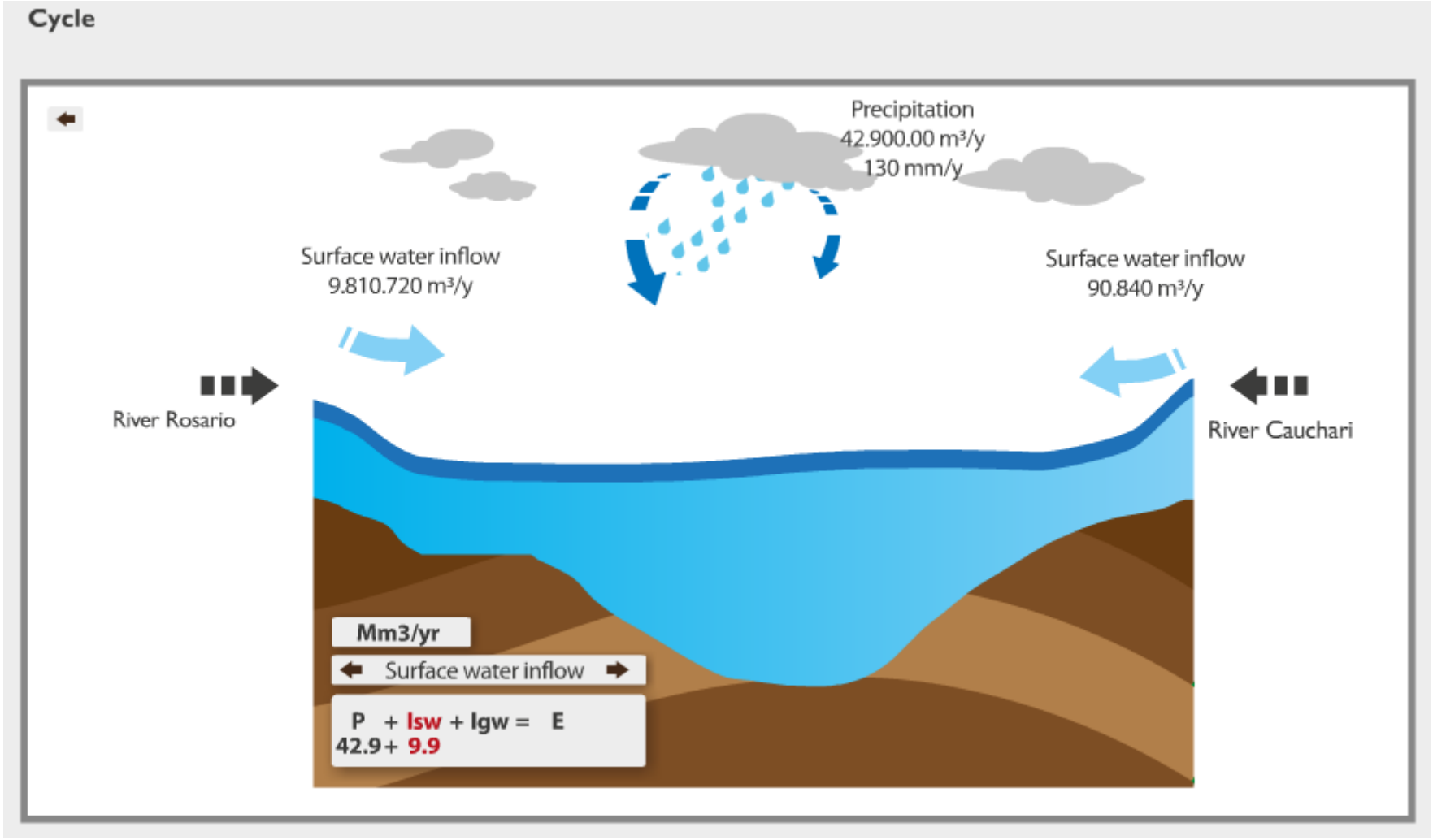

Resources in Brine: Concepts
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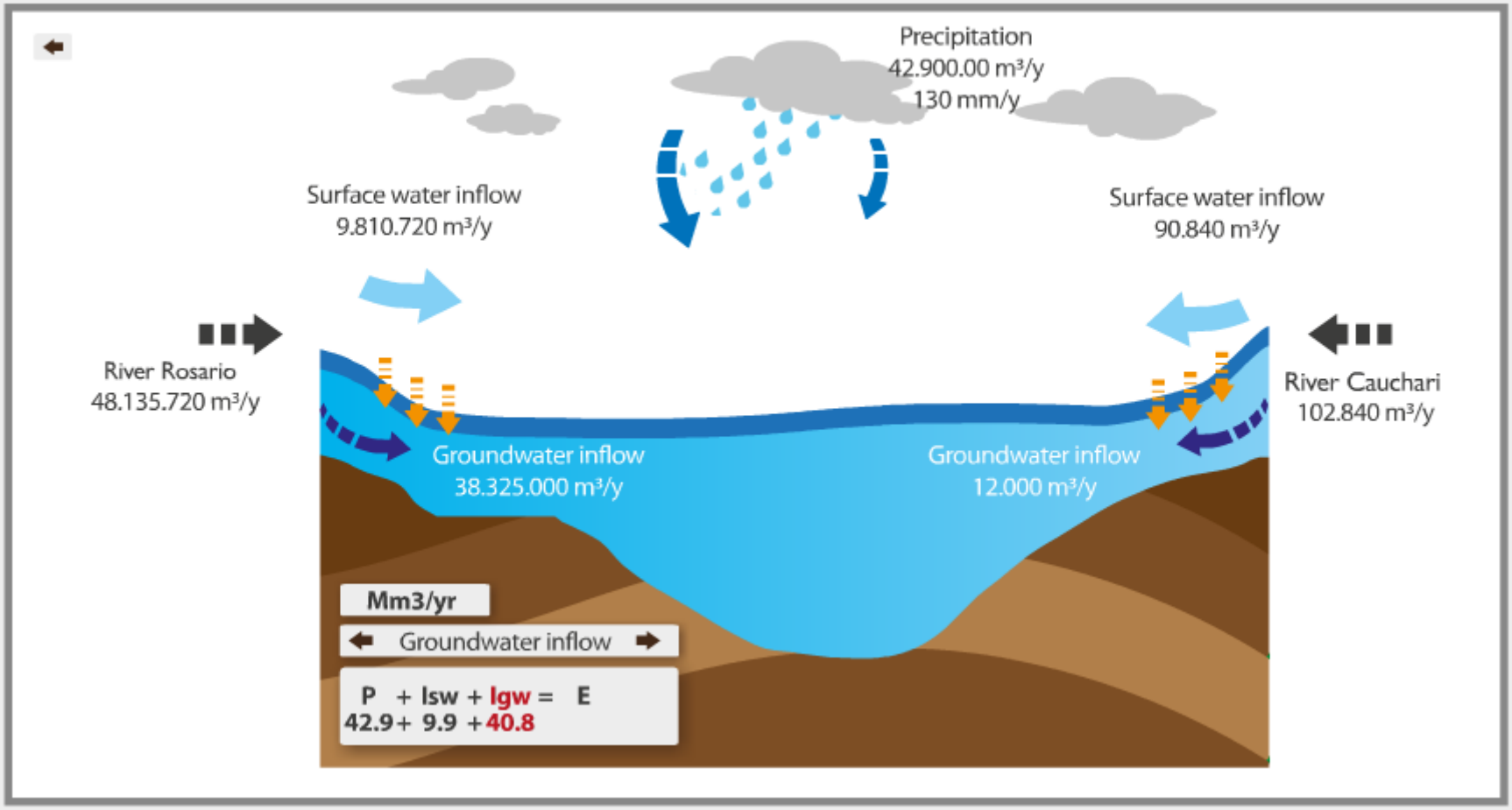

Resources in Brine: Concepts
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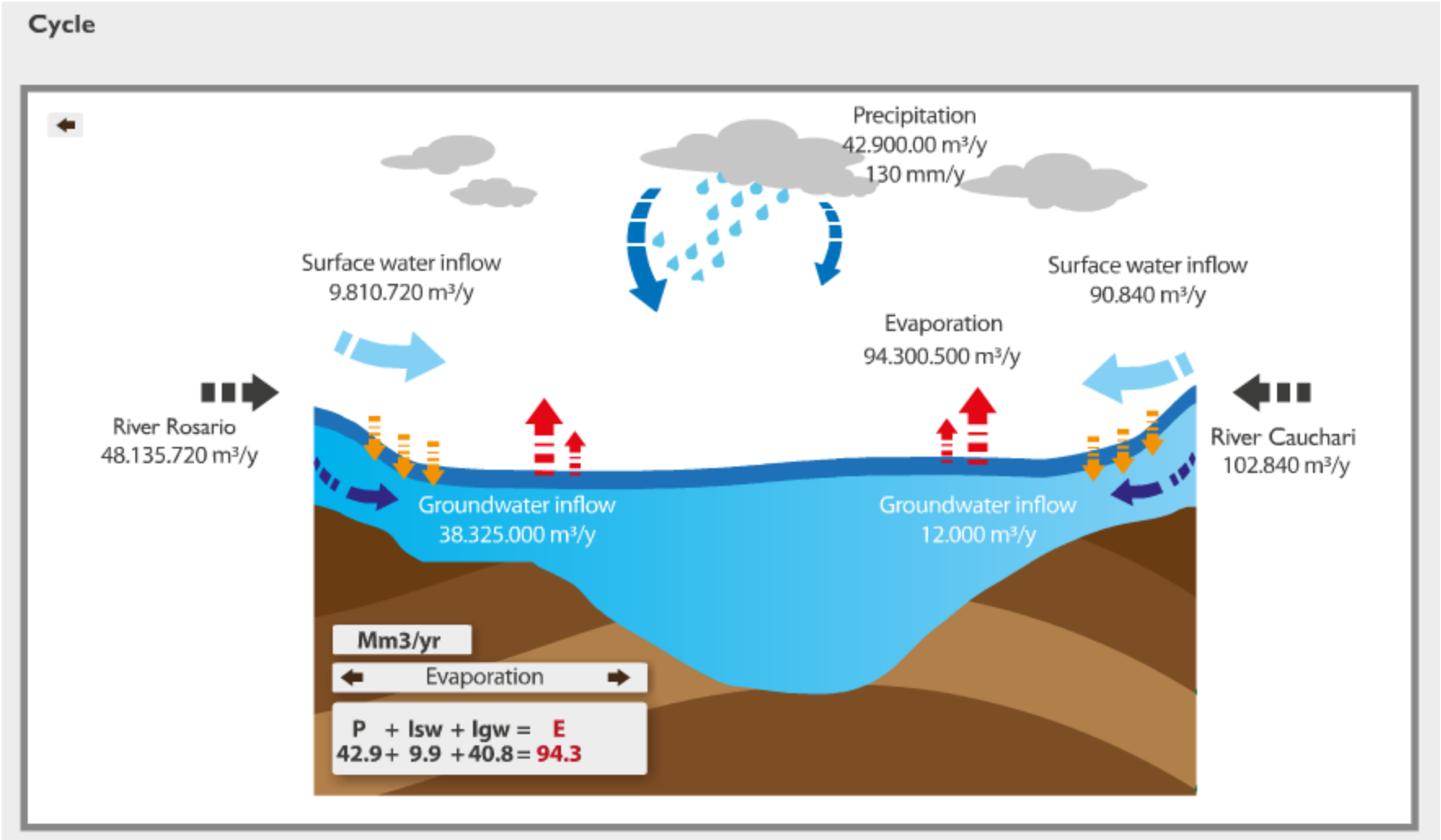


Resources in Brine: Concepts
(Source: Administrative Report U.S. Geological Survey)

- ***Liquid resource 15,000 tpa Li_2CO_3 @ 600 mg/l Li @ Overall Recovery 70%=***

  780 m3/hr

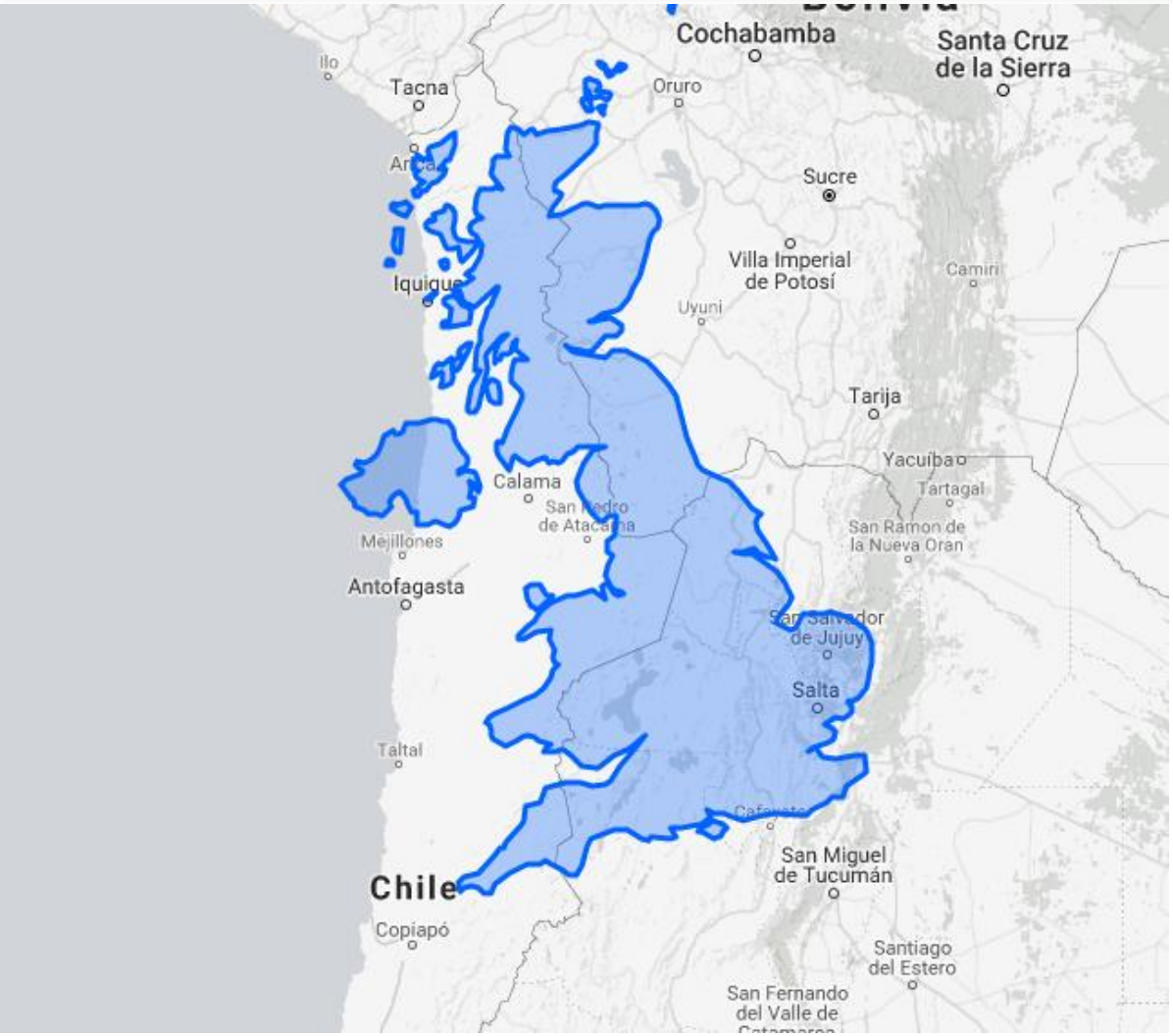
  Reserves: Cut-off

- ***First Junior Exploration Mining approach concept***

Reserves and Resources 2017 USGS

Country	2015		2016		2017			
	Reserves (mt Li content)	Resources (mt Li content)	Reserves (mt Li content)	Resources (mt Li content)	Reserves (mt Li content)	LCE	Resources (mt Li content)	LCE
Argentina	850.000	6.500.000	2.000.000	6.500.000	2.000.000	10.571.429	9.000.000	47.571.429
Australia	1.500.000	1.700.000	1.500.000	1.700.000	1.600.000	8.457.143	2.000.000	10.571.429
Austria				130.000			100.000	
Bolivia		9.000.000		9.000.000			9.000.000	
Brazil	48.000	180.000	48.000	180.000	48.000	253.714	200.000	1.057.143
Canada		1.000.000		1.000.000			2.000.000	
Chile	7.500.000	7.500.000	7.500.000	7.500.000	7.500.000	39.642.857	7.500.000	39.642.857
China	3.500.000	5.400.000	3.200.000	5.100.000	3.200.000	16.914.286	7.000.000	37.000.000
DRC		1.000.000		1.000.000			1.000.000	
Mexico				180.000			200.000	
Portugal	60.000		60.000		60.000	317.143		
Russia		1.000.000		1.000.000			1.000.000	
Serbia		1.000.000		1.000.000			1.000.000	
United States	38.000	5.500.000	38.000	6.700.000	38.000	200.857	6.900.000	36.471.429
Zimbawe	23.000		23.000		23.000	121.571	100.000	528.571
World Total	**13.519.000**	**39.780.000**	**14.369.000**	**40.990.000**	**14.469.000**	**76.479.000**	**47.000.000**	**248.428.571**

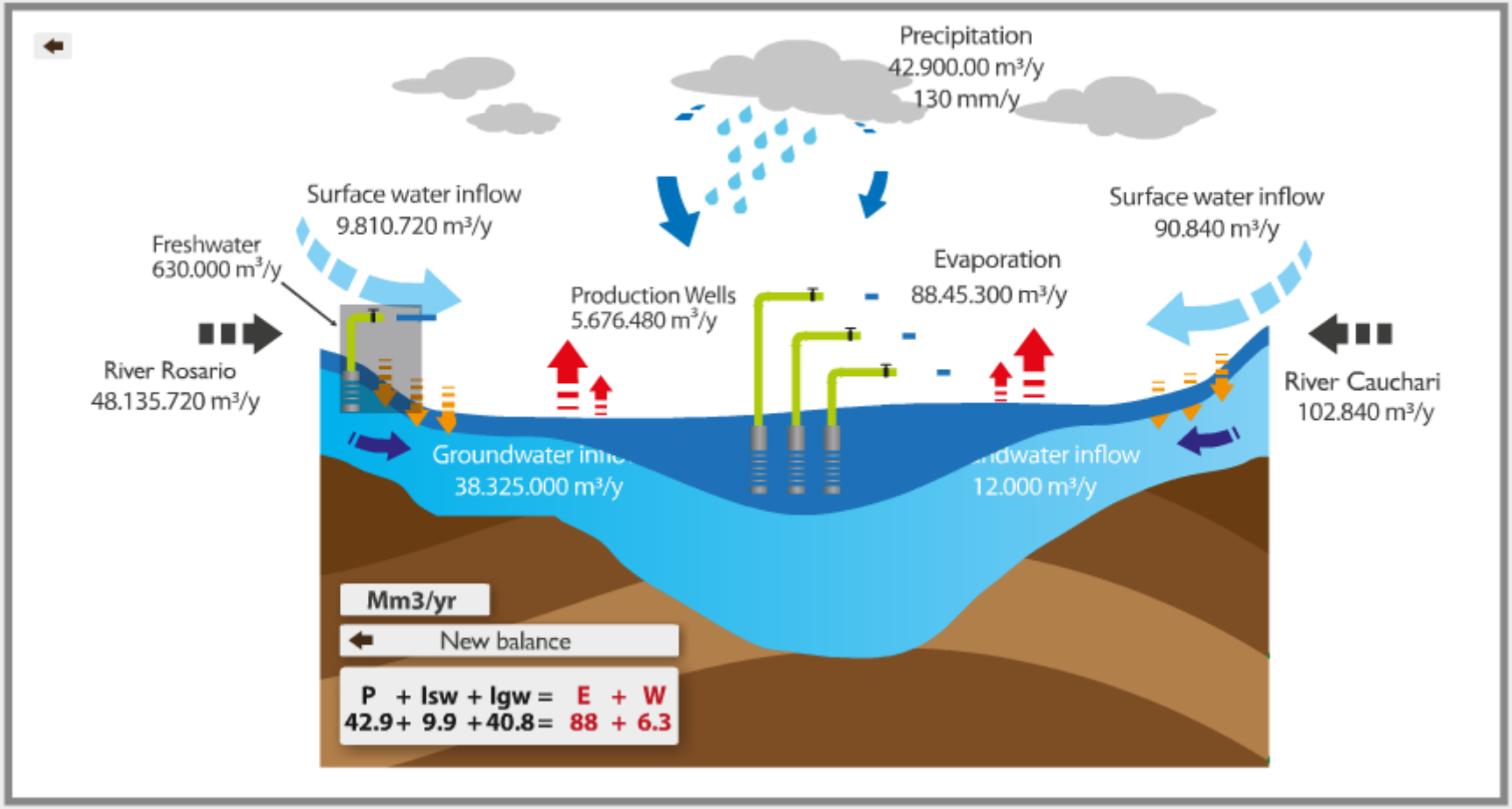
Resources in Brine: Concepts
(Source: Administrative Report U.S. Geological Survey)



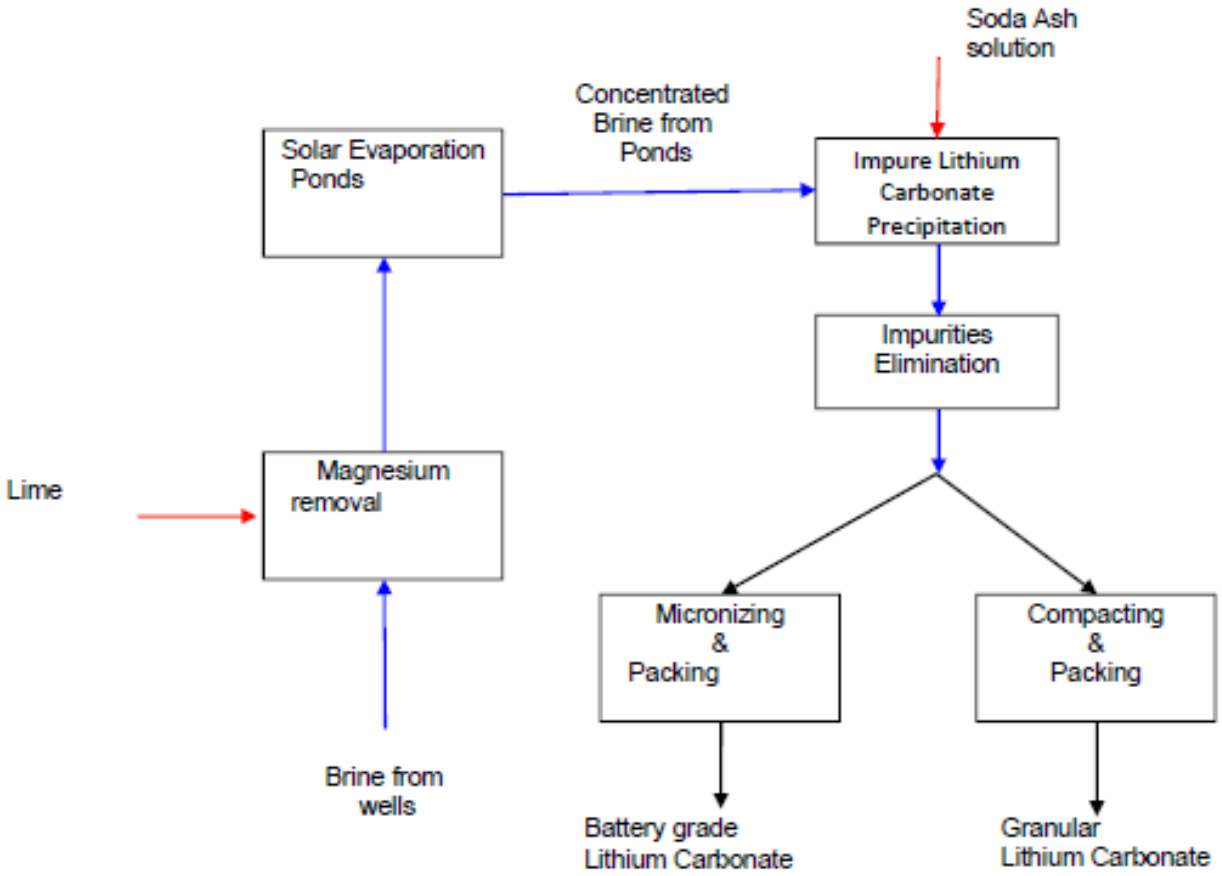
- ***Total Area lithium Triangle covered by projects; 22,342 km2=5,521,000 acres more than 10 % of U.K. area***
- ***DD (SD) core/chemistry pumping test; ¨extractability¨, ¨pumpability¨***
- ***Current Reserves are enough based on demand***

Processing: Chemical Industry

Cycle

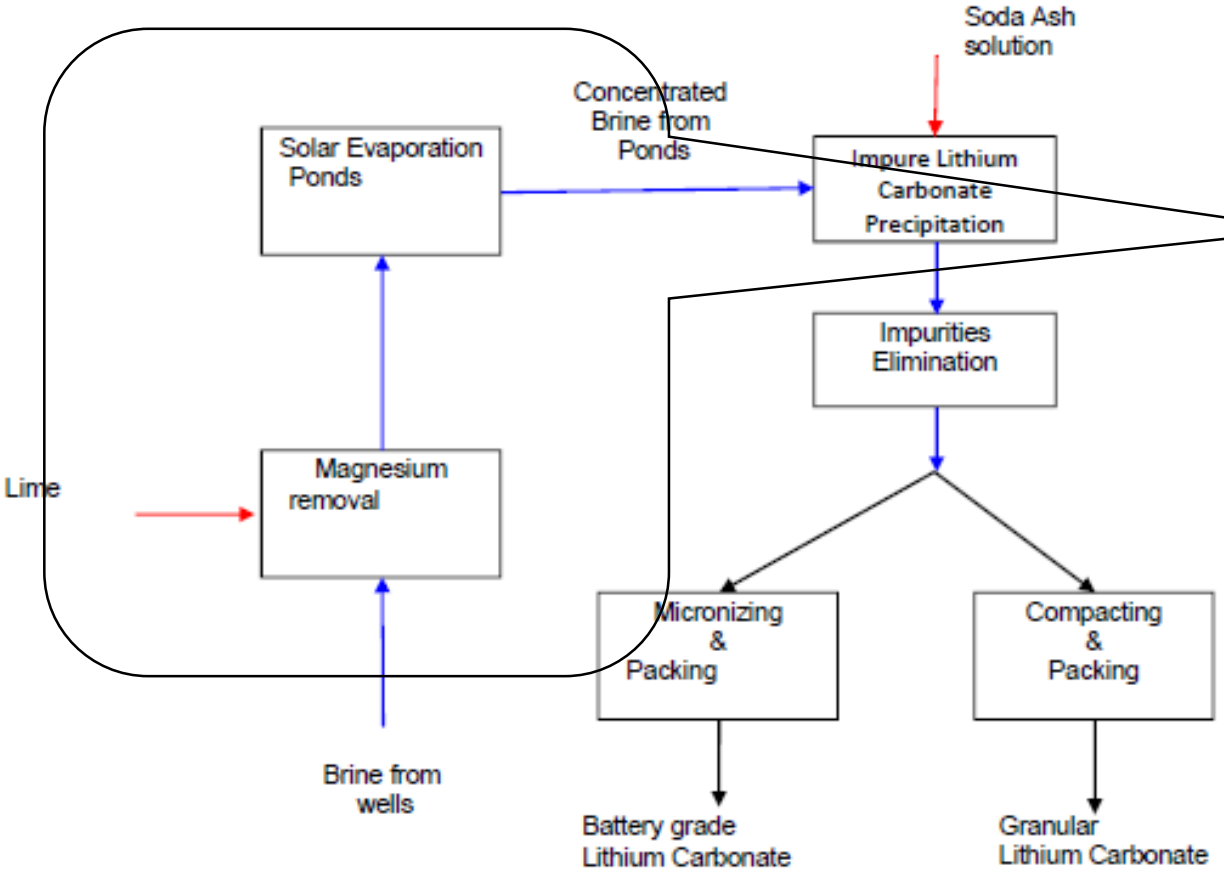


Processing: Chemical Industry



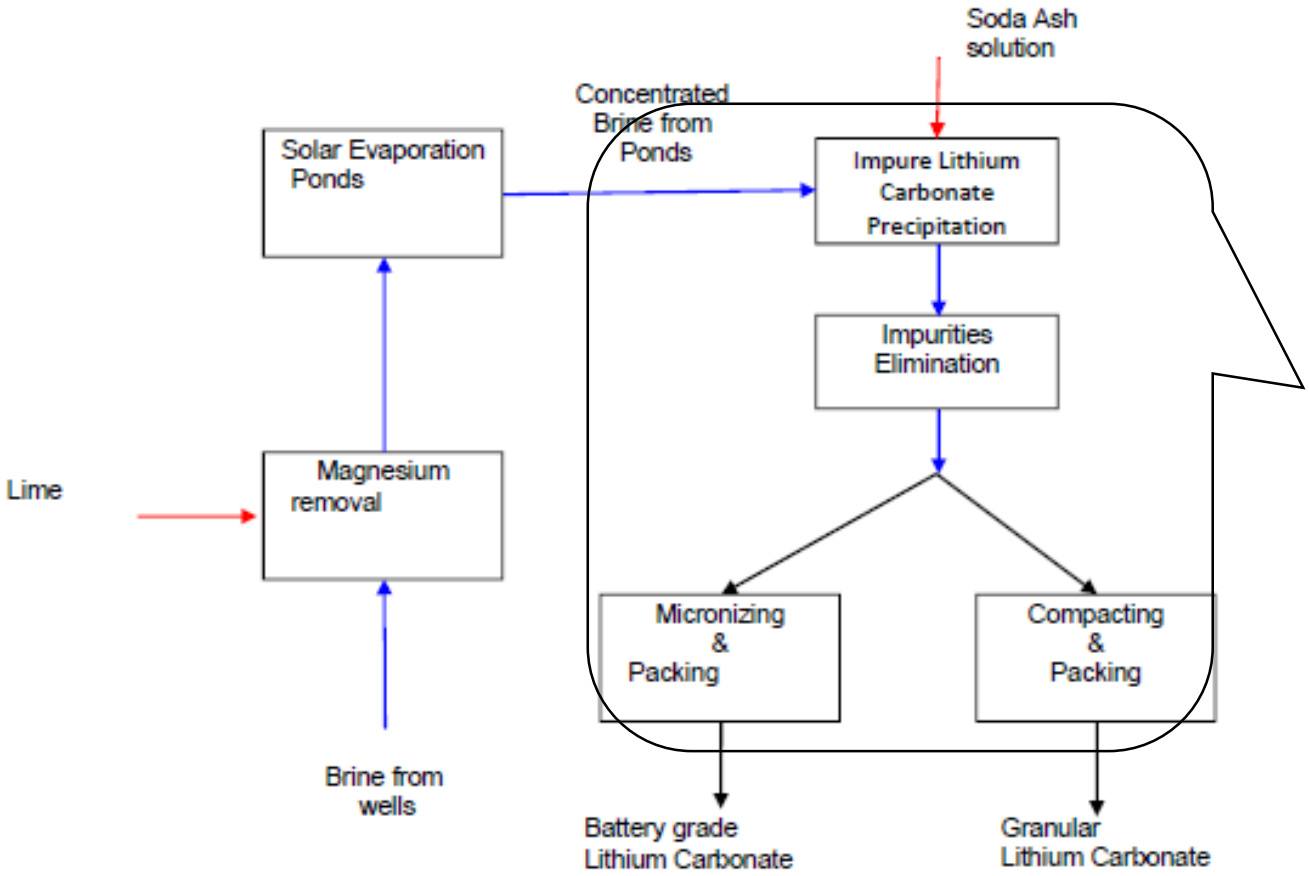
- ***Current route is the best option***
- ***Challenge 1: Ponds management***
- ***Challenge 2: Chemical & Physical Quality***
- ***What about new technologies***

Processing: Chemical Industry



- ***Current route is the best option***
- ***Challenge 1: Ponds management***
- ***Challenge 2: Chemical & Physical Quality***
- ***Sizing vs Risk***
- ***What about new technologies***

Processing: Chemical Industry



- ***Current route is the best option***
- ***Challenge 1: Ponds management***
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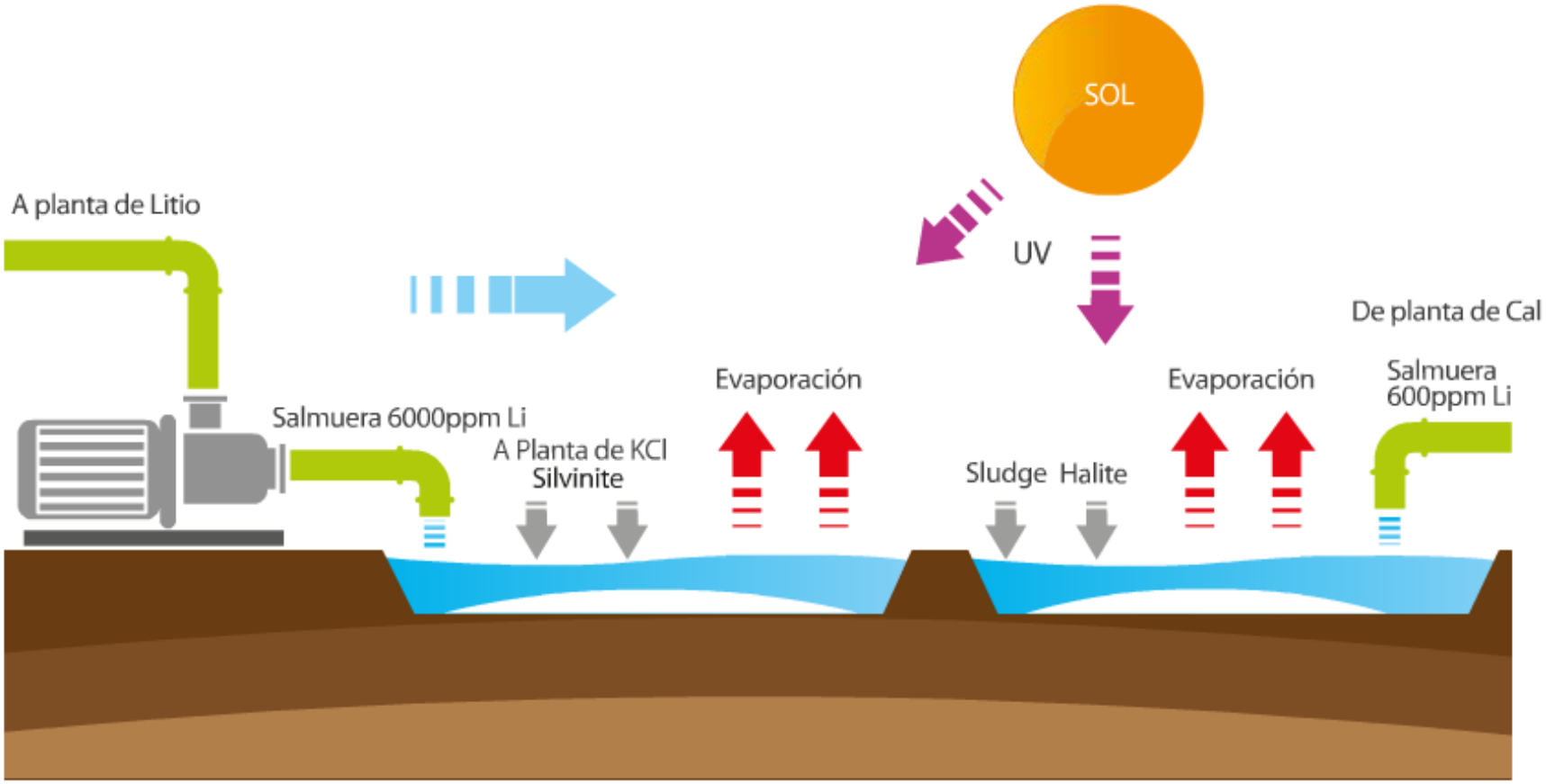
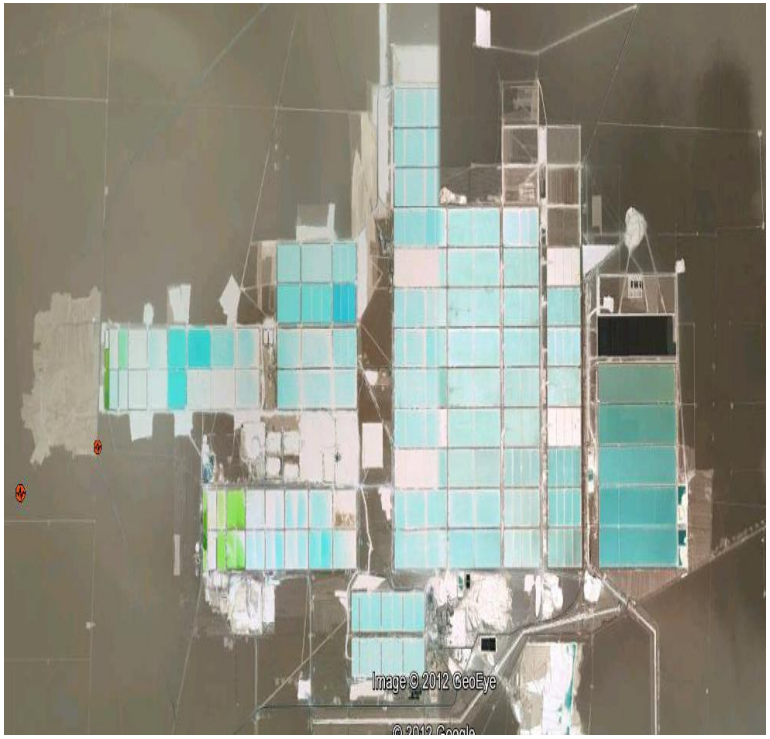
- ***What about new technologies***

Processing: Chemical Industry Ponds



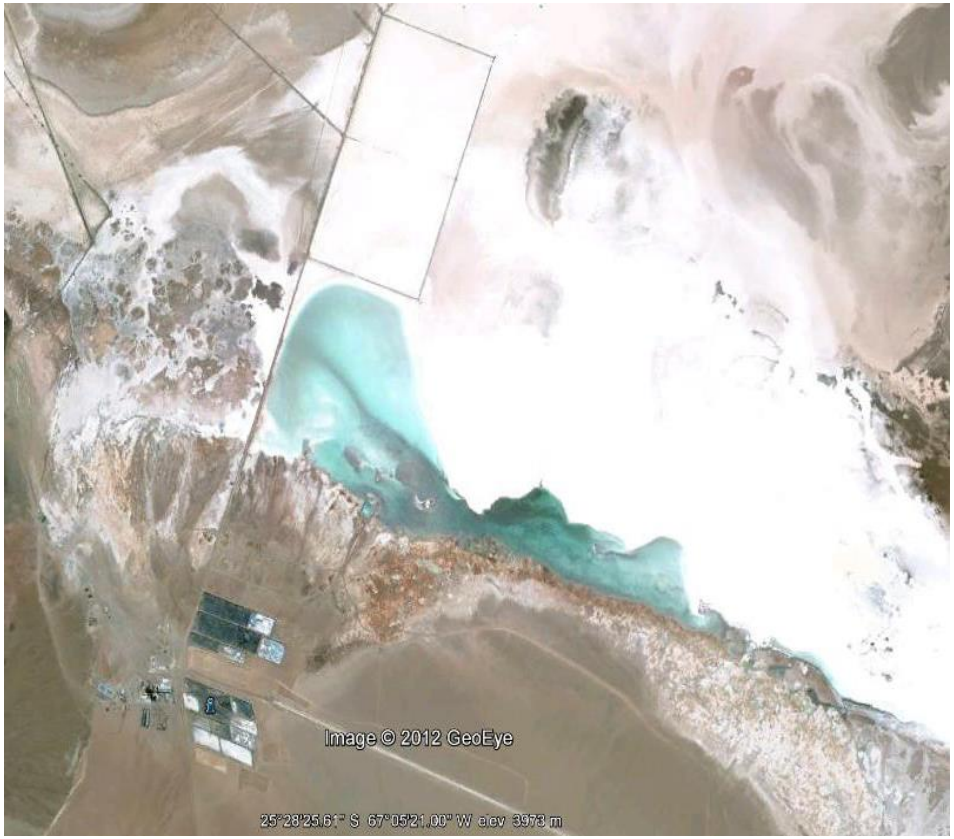
Processing: Chemical Industry
SQM Ponds



Surface: 2.800 ha

- ***Leadership for new projects***
- ***Stable and dryest weather around the world***
- ***Huge halite harvesting***
- ***More area for harvesting***
- ***0 liquid discharge***

Processing: Chemical Industry
FMC Ponds



Superficie: 30 ha

- ***Process of SA (pre extraction)***
- ***Spent brine to Salar***
- ***Weather conditions less stable however manageable***
- ***50 % more cost***

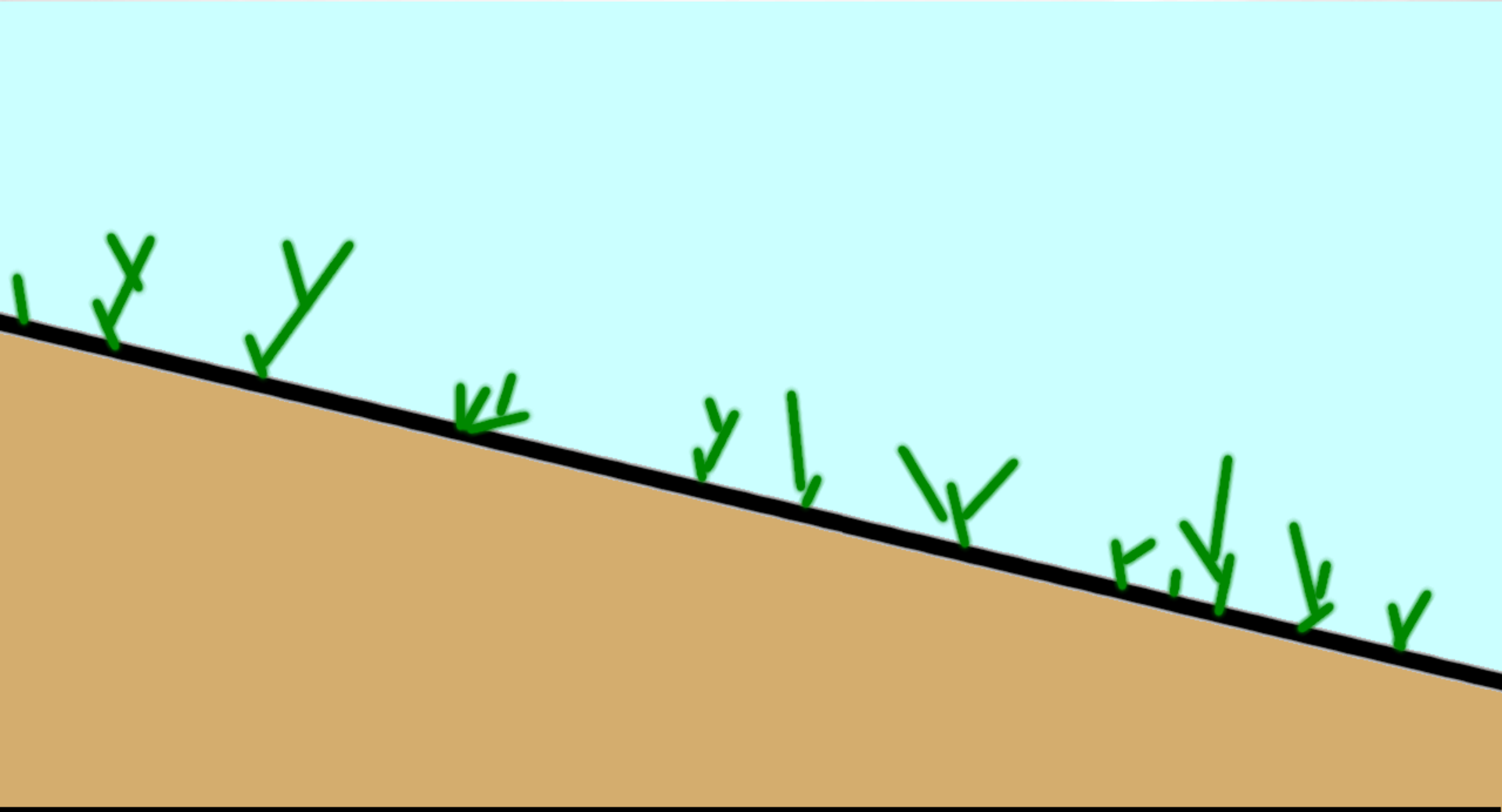
Processing: Chemical Industry
Orocobre Ponds

Superficie: 450 ha

- ***Tailing Dam Concept***
- ***Originally less Capex (50%) and less Opex (5-10%)***
- ***More inventory and entrainment***
- ***0 liquid discharge***
- ***Weather conditions inestable***

Processing: Chemical Industry
Orocobre Ponds

Processing: Chemical Industry
Orocobre Ponds



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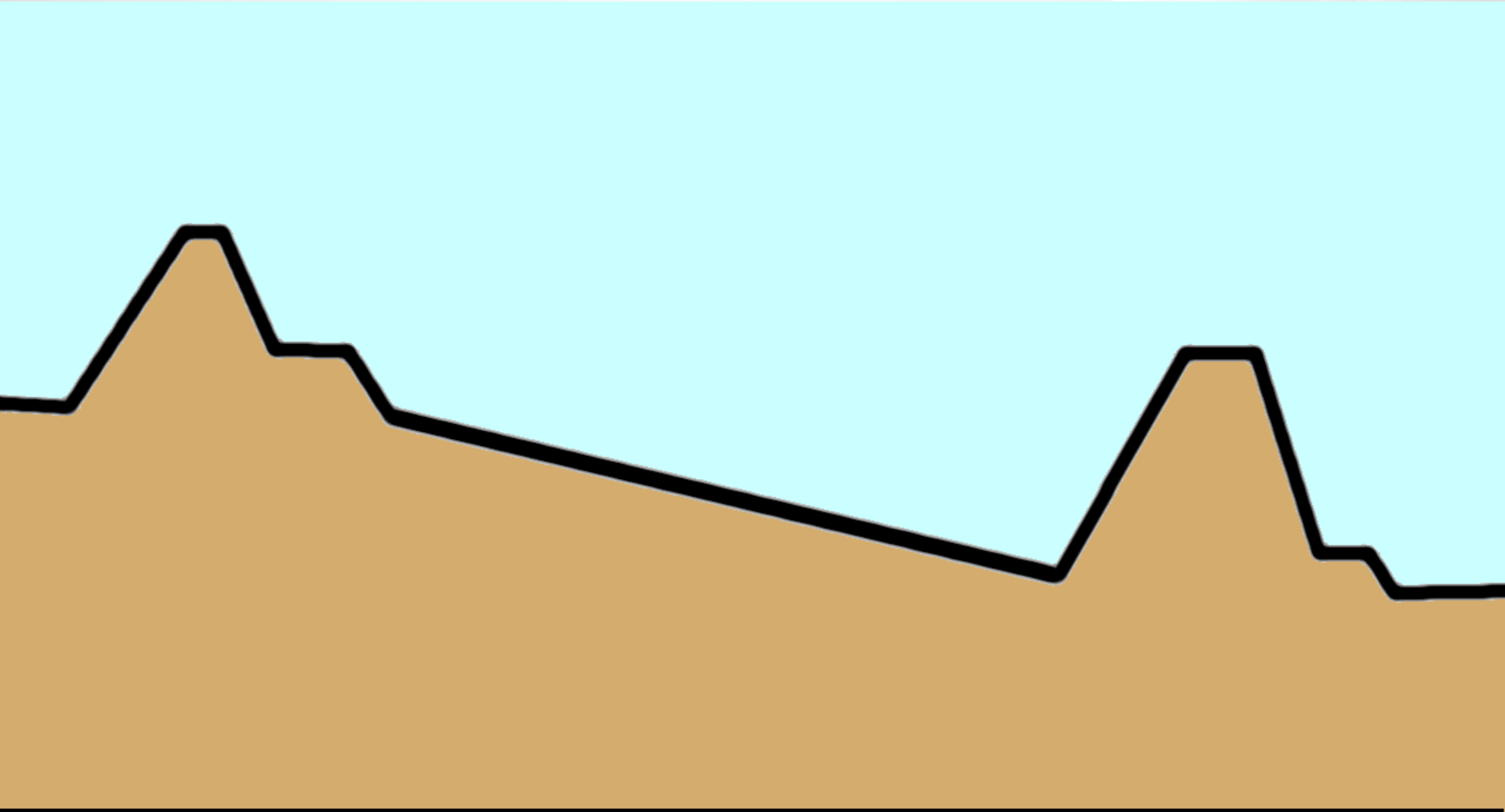

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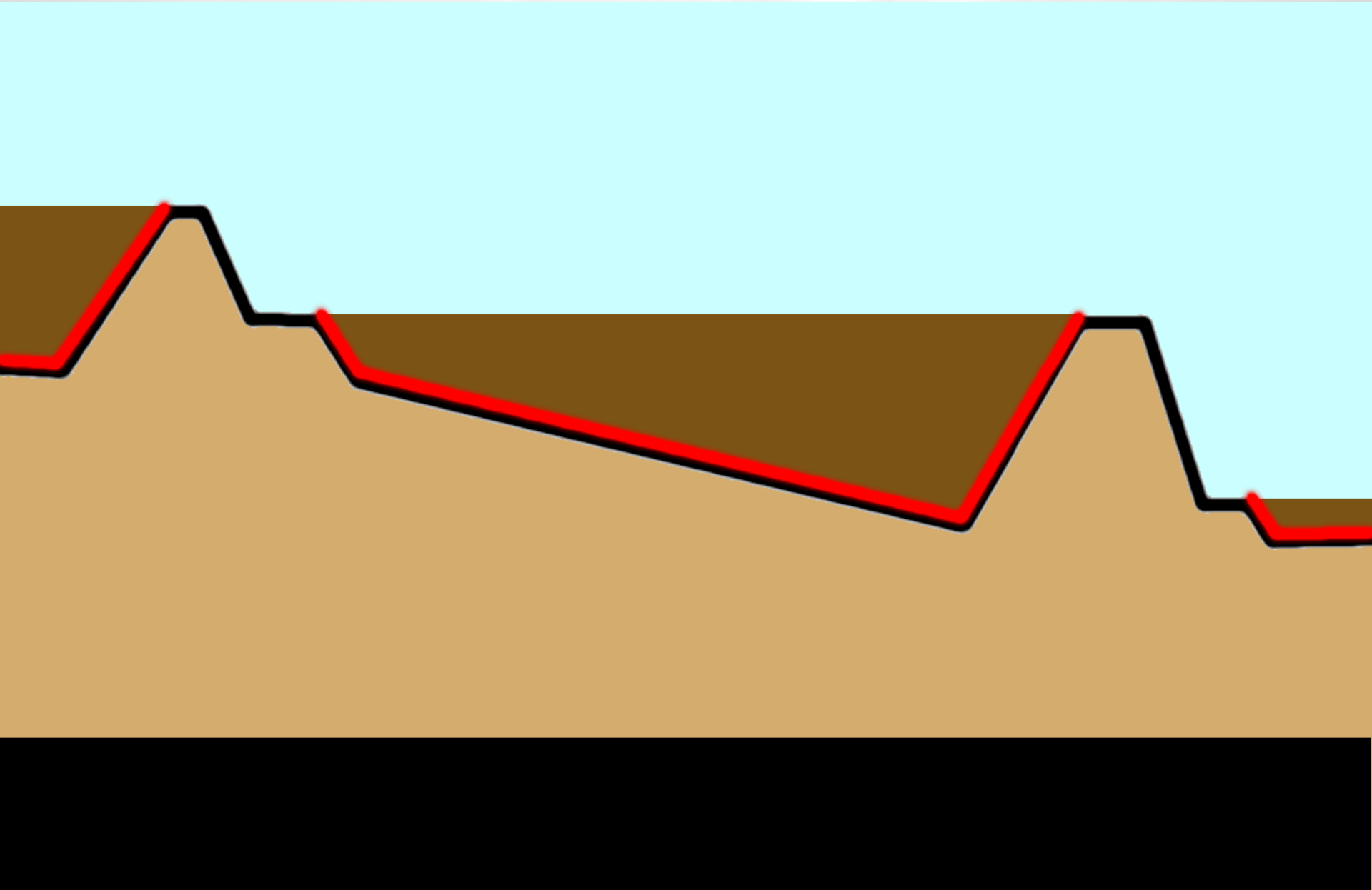

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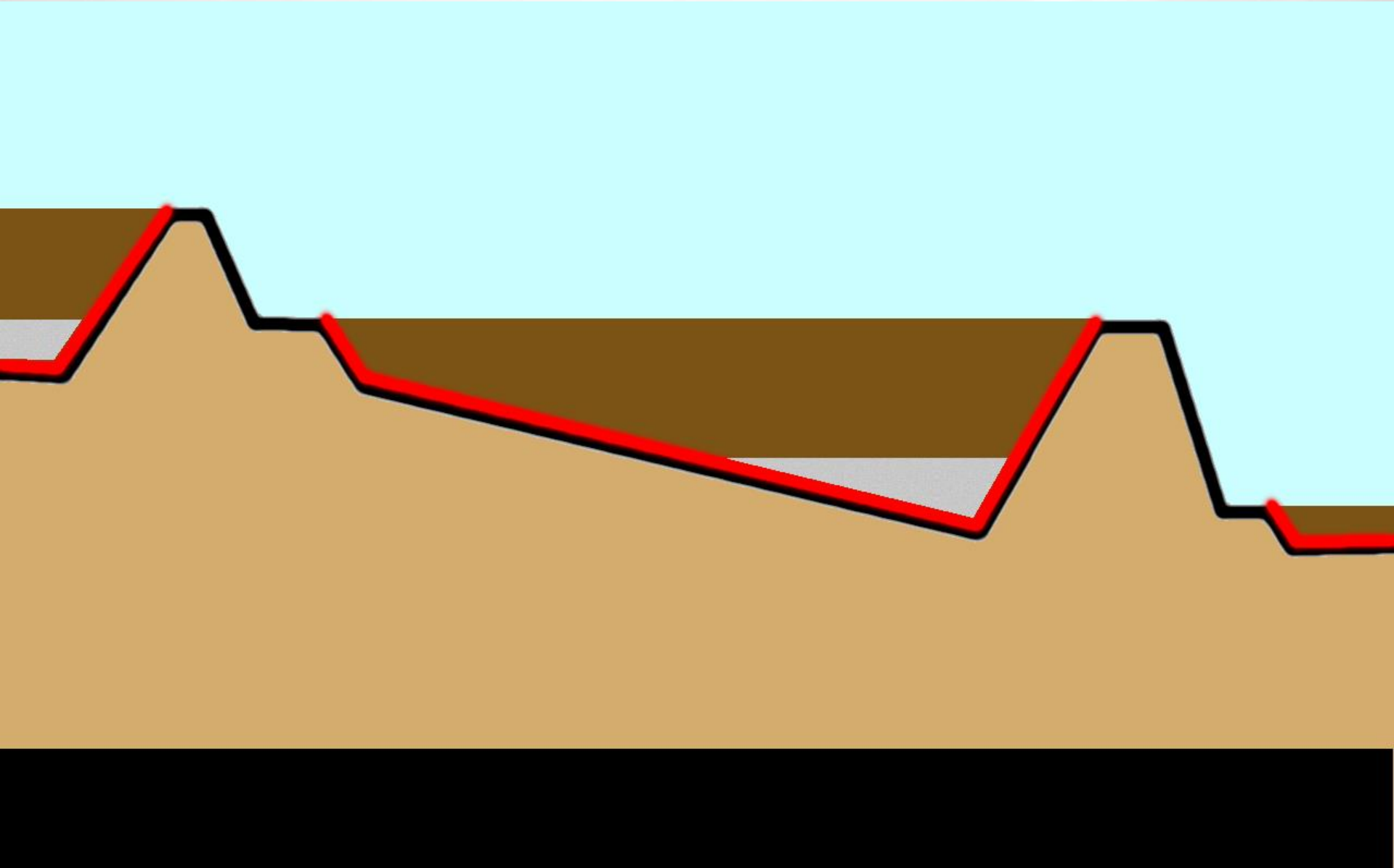

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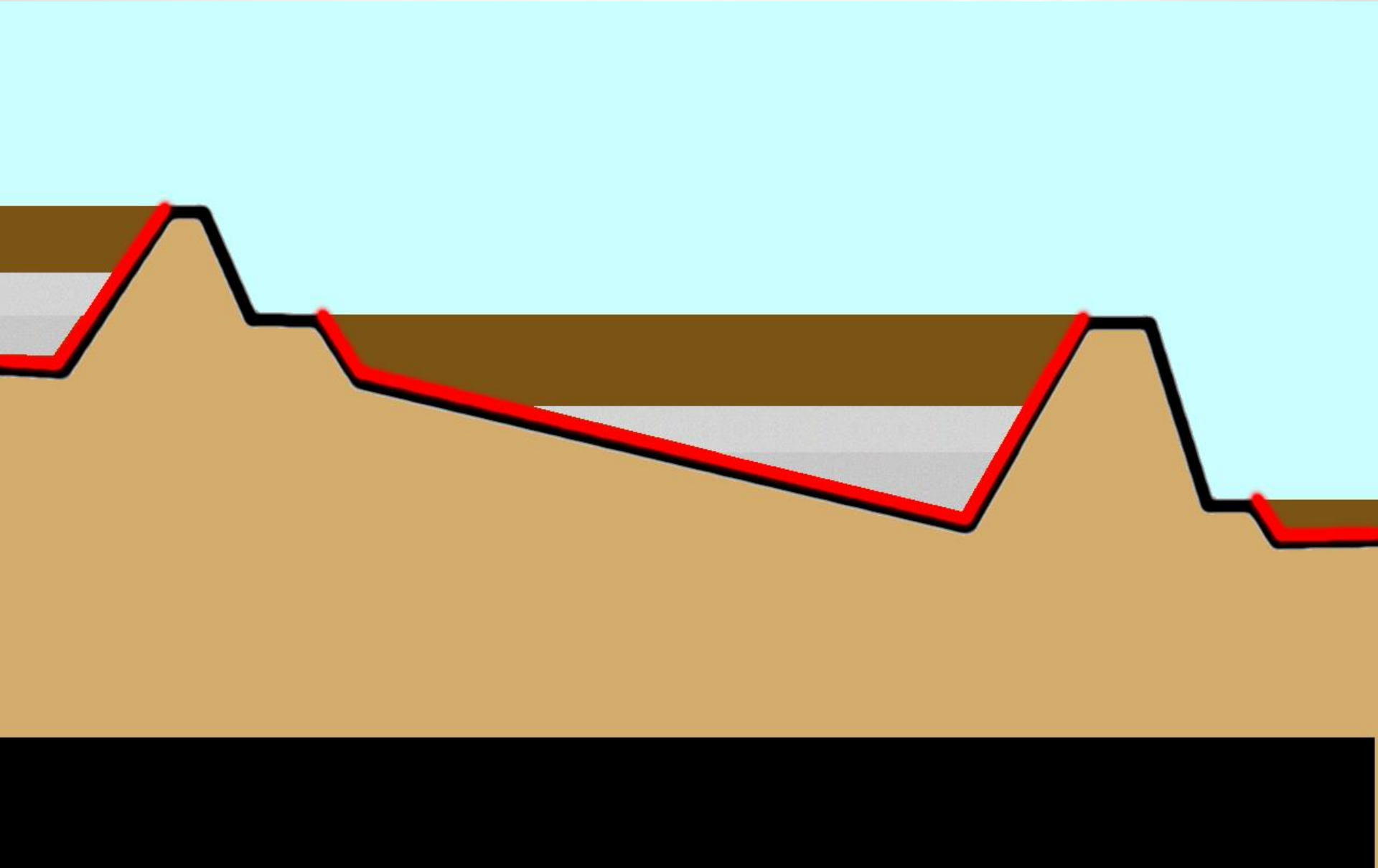

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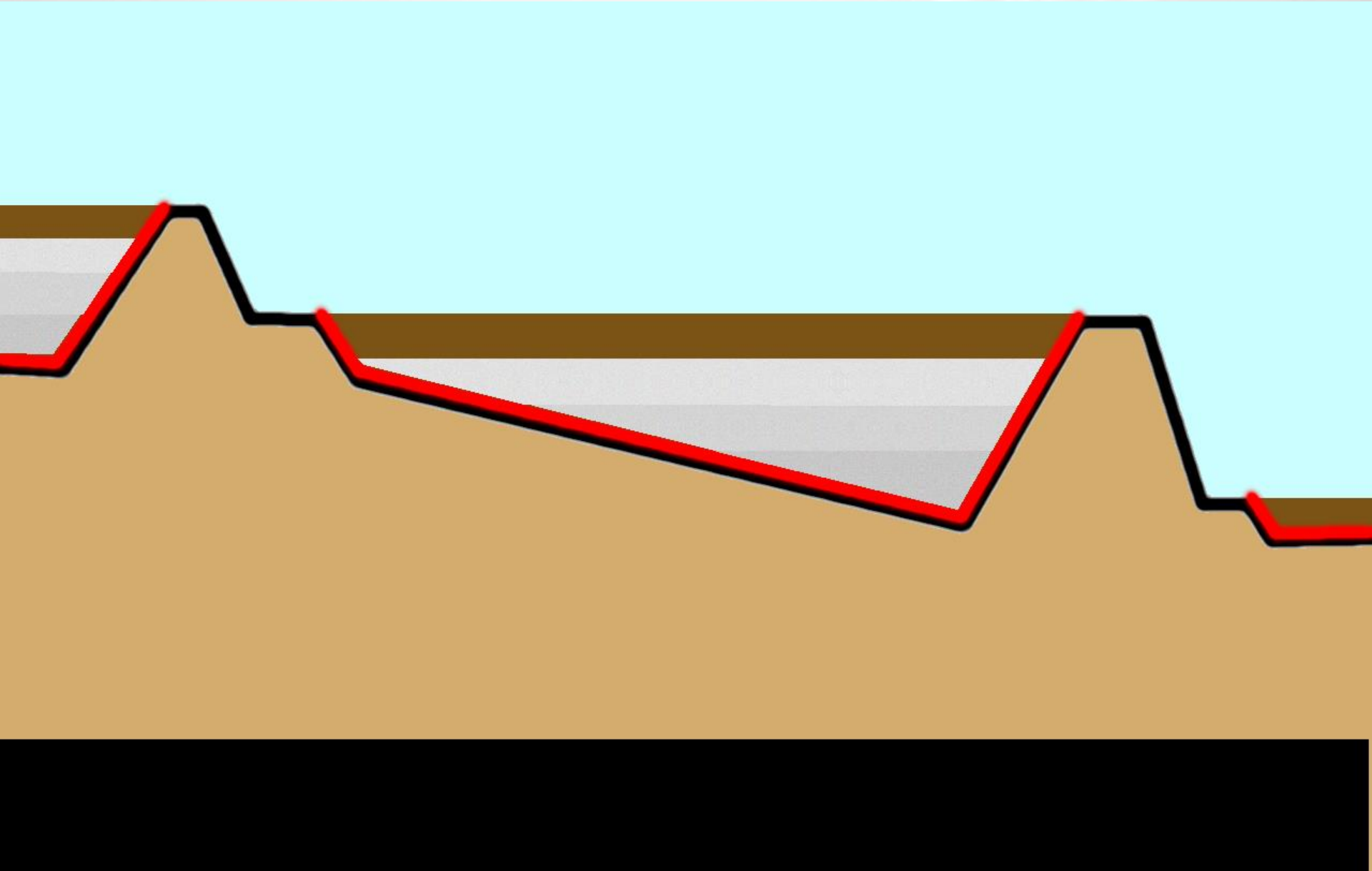

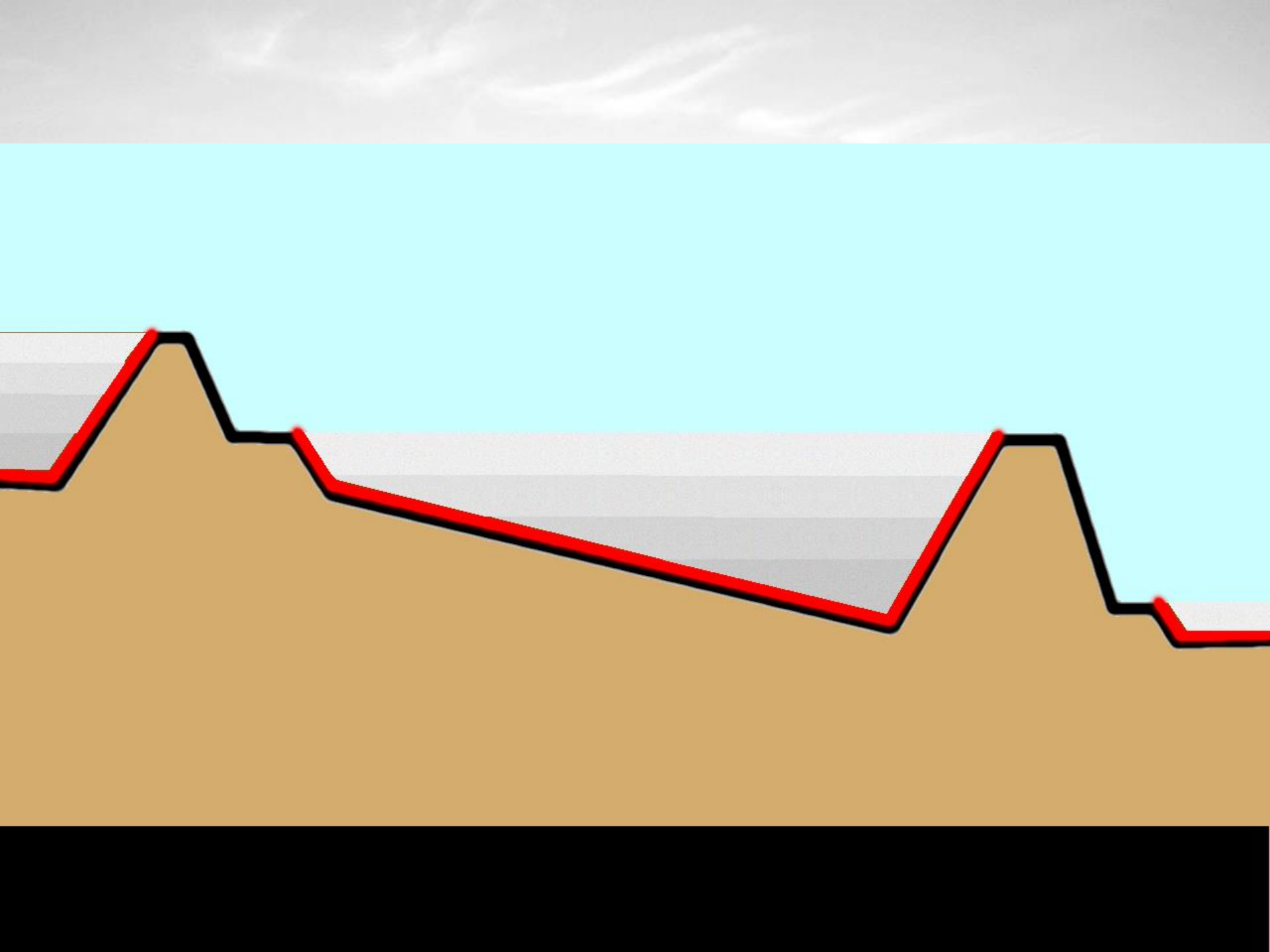

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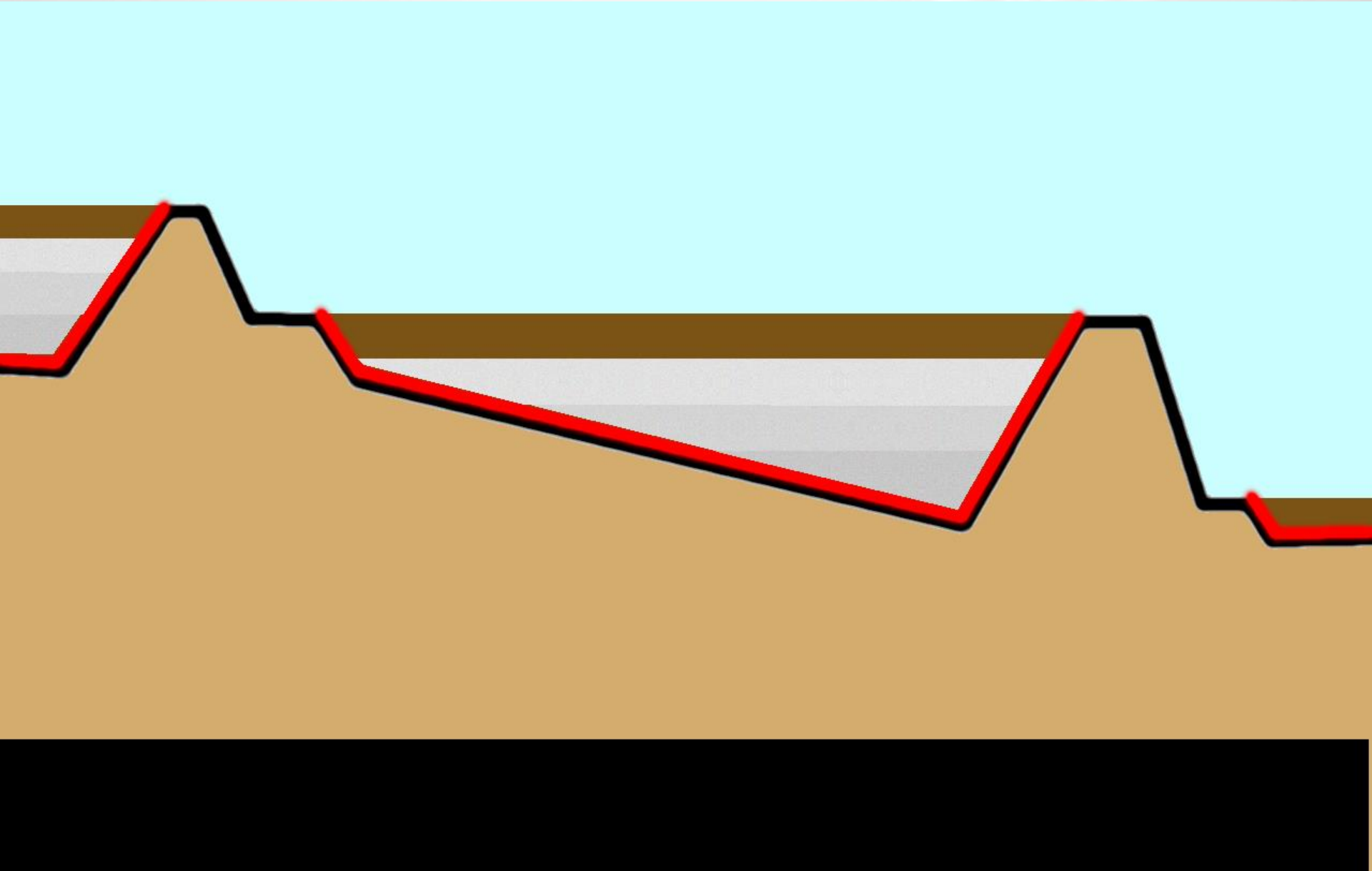

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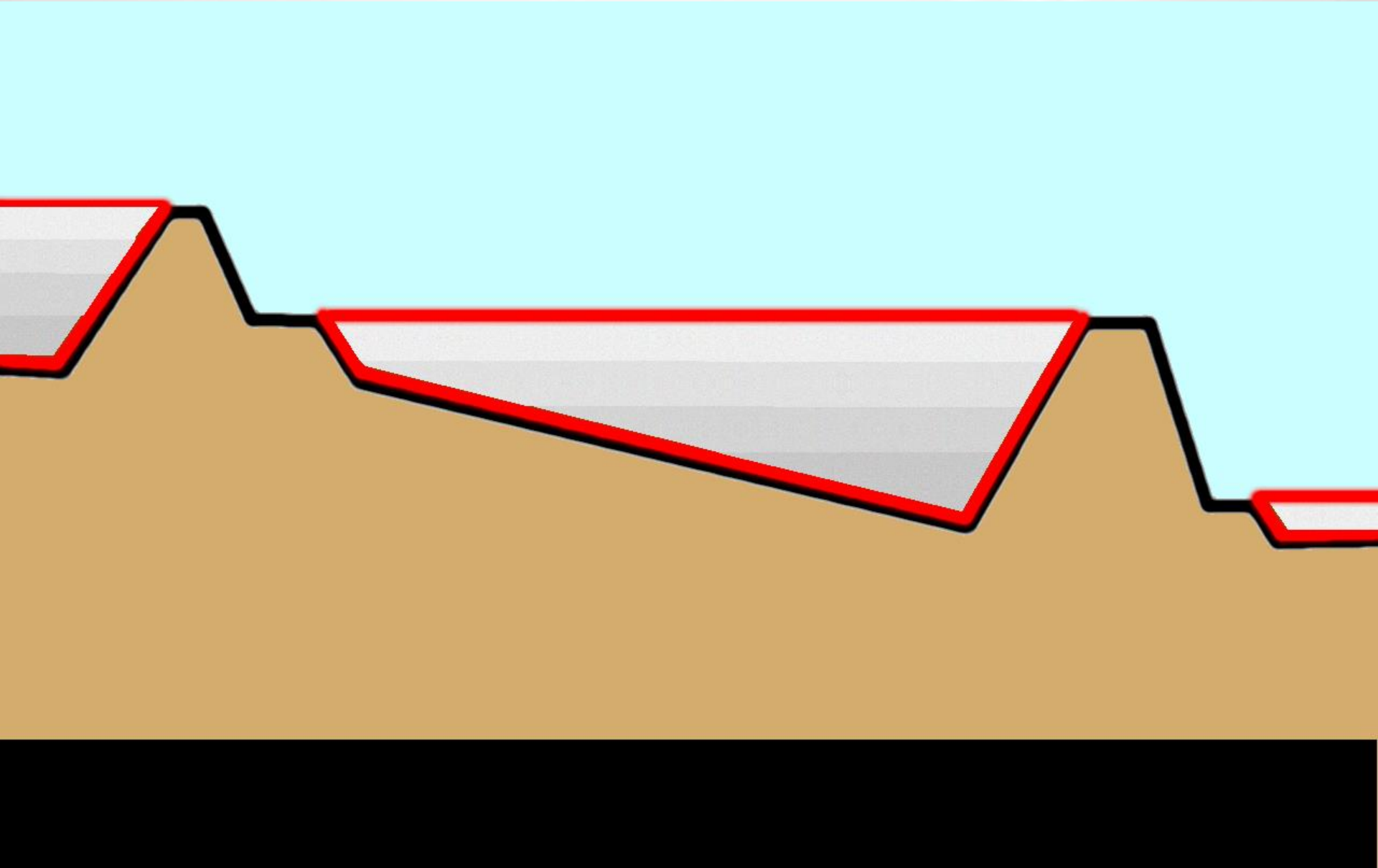

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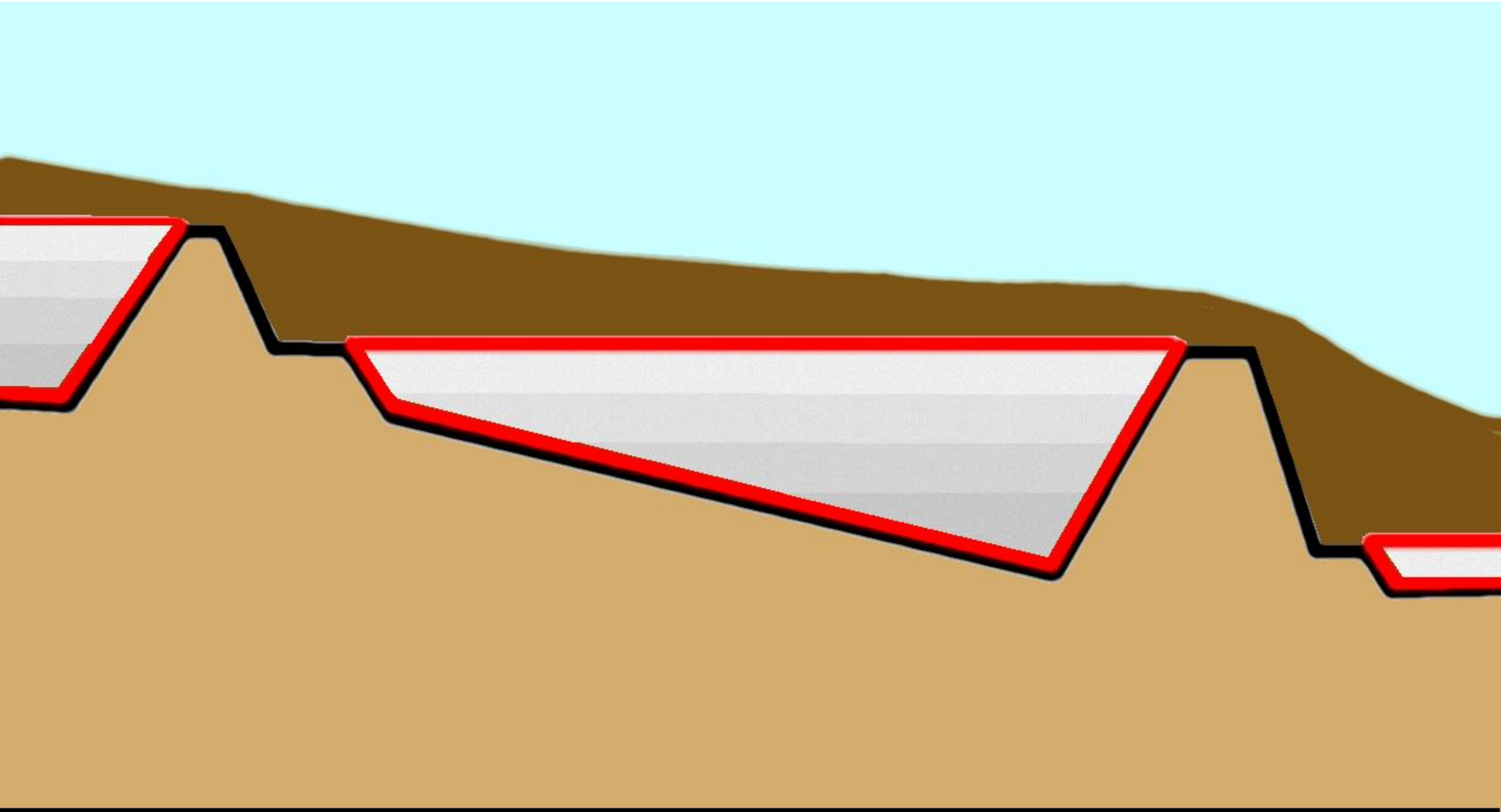
Orocobre Ponds



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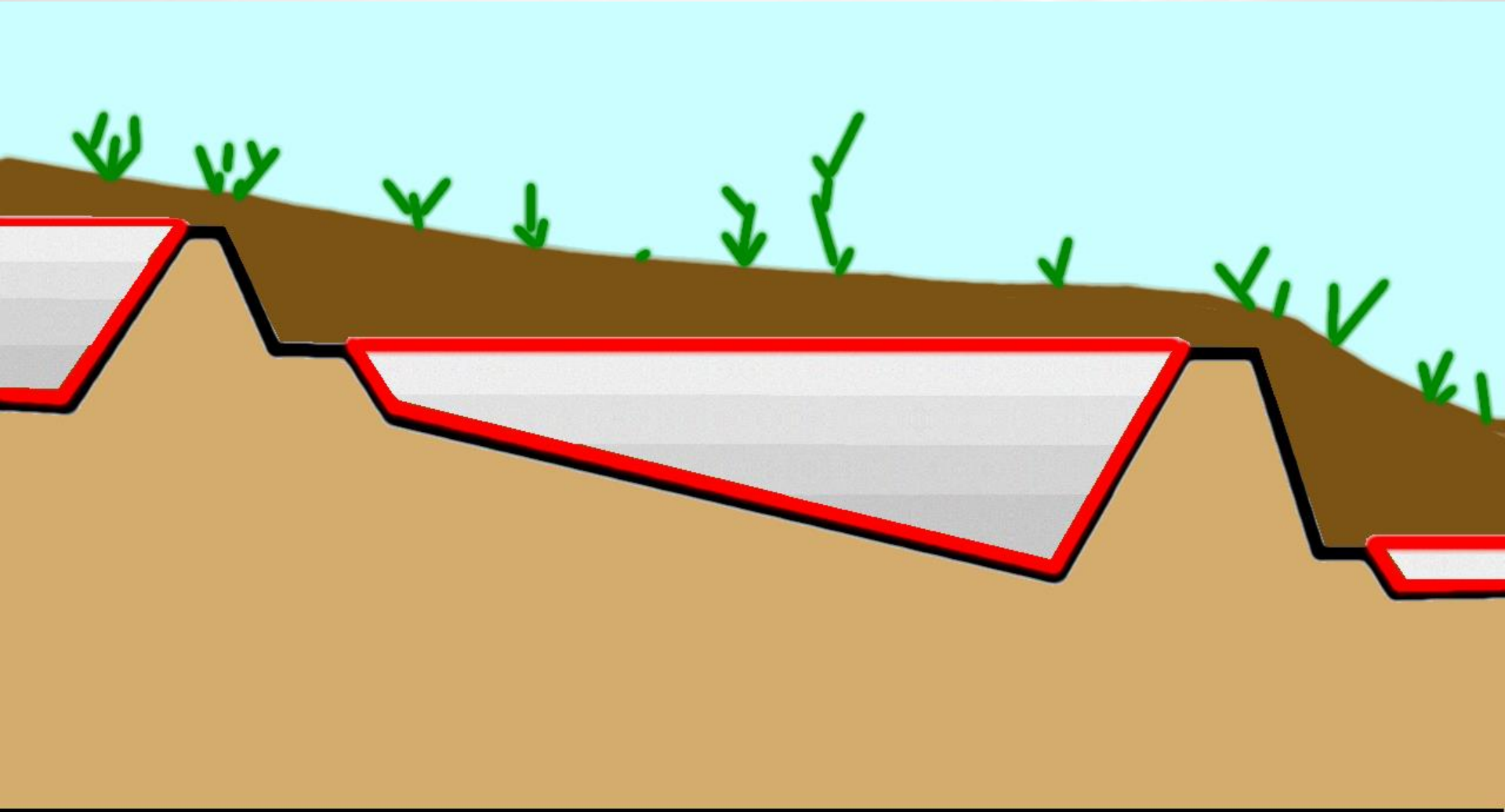

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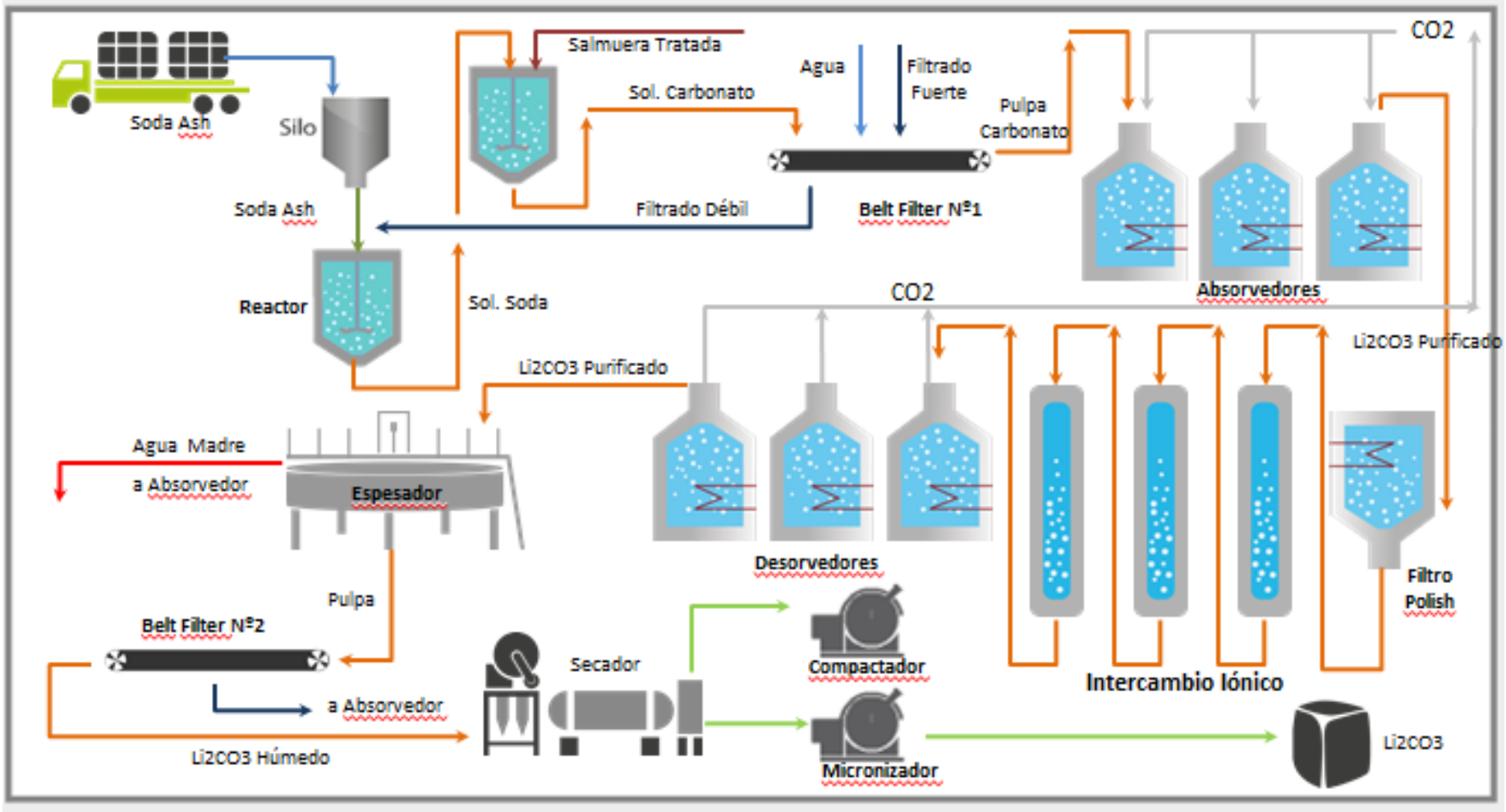

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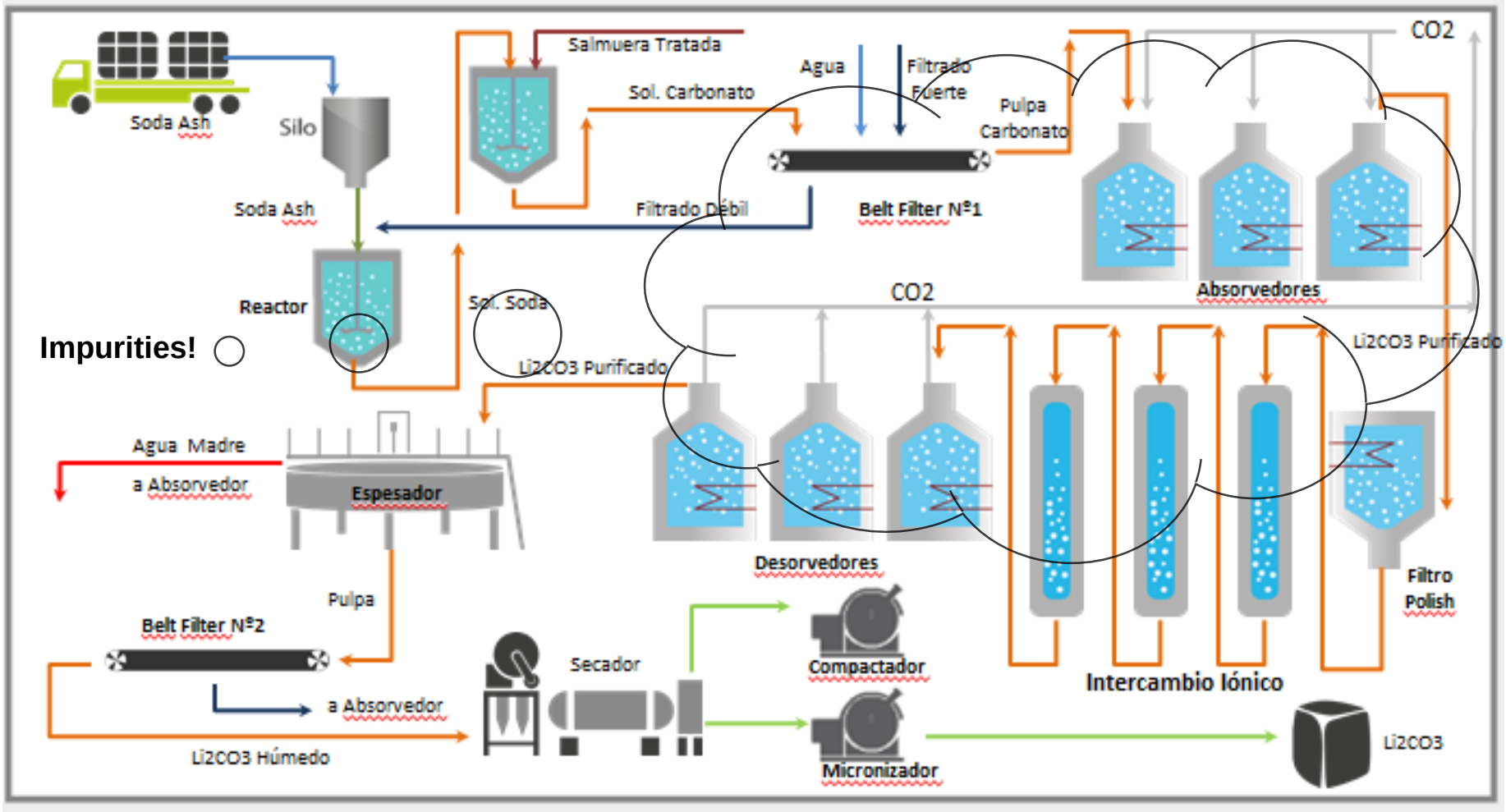

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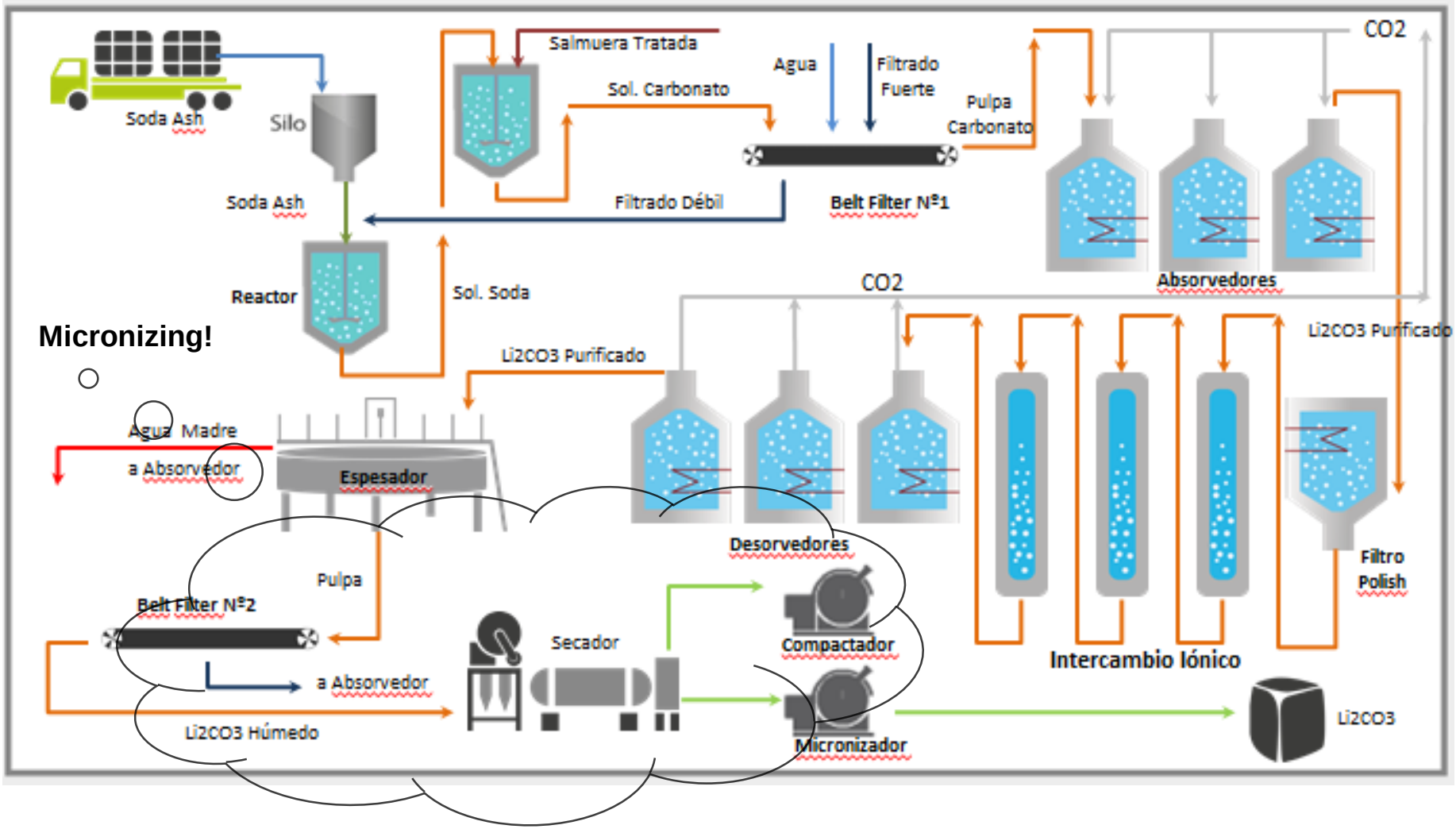


Business: Mining leadership

Potential lithium expansion projects, 2011-2015 (tpy LCE)

Company	Country	Type	Additional capacity[1]	Completion[2]	Phase	CAPEX (US$M)
FMC	Argentina	B	7,000	2011	Construction	20-25
Rongda Lithium	China	M	14,800	2011	Planned	68
Tibet Zabuye	China	B	8,000	2012	Planned	150
Talison Lithium	Australia	M	64,000	2012	Approved	~40
Maerkang Jinxin	China	M	37,000	2013	Planned	…
Chemetall	USA	B	5,000	2013	Construction	56.8
Rincon Lithium	Argentina	B	16,000	2015	Planned	225
CITIC Guoan	China	B	10,000	2015	Planned	…
Qinghai Salt Lake	China	B	10,000	2015	Planned	…
Qinghai Lithium	China	B	14,000	2015	Planned	250
Chemetall	Chile	B	13,000	2015	Planned	…
Total			**200,800**			
Sub-total brine			**83,000**			
Sub-total mineral			**117,800**			

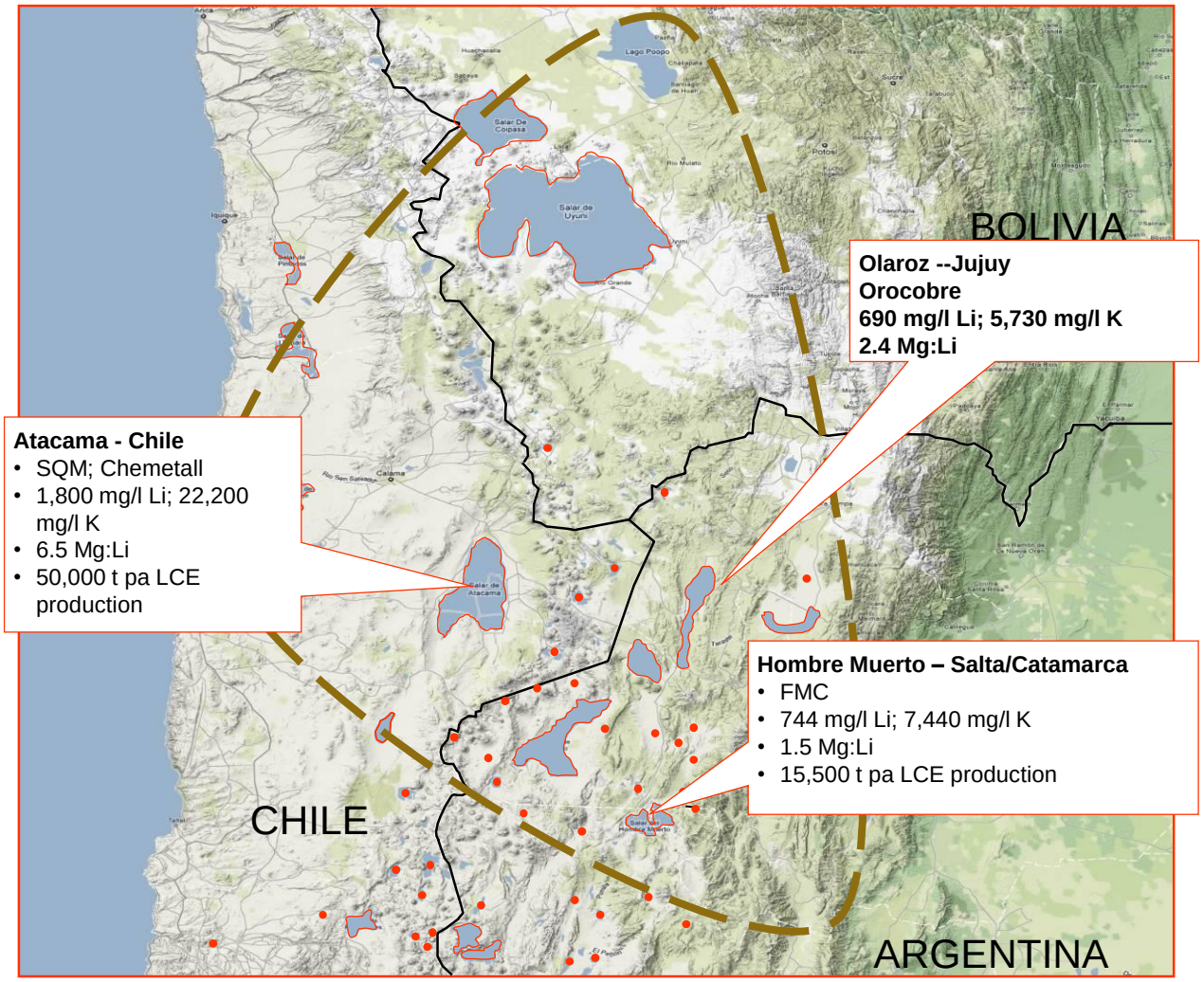
Business: Mining leadership

Table 9: World: Potential new lithium projects 2011-2015 (tpy LCE)

Company	Project	Country	Type	Capacity	Start-up[1]	Phase	CAPEX (US$M)
Galaxy Resources	Mount Cattlin	Australia	M	20,600	end-2010	Ramping-up	60[2]
Reed Resources	Mount Marion	Australia	M	25,000	end-2011	Construction	64-125[3]
Fujian Huamin	Jinchuan	China	M	4,000	2012	Feasibility	13.5
Sichuan Dexin	Lijiagou	China	M	5,400	2012	Feasibility	75
Sichuan Tianqi	Cuola	China	M	9,000	2012	Feasibility	225
CIF/AMG	Mibra	Brazil	M	5,800	2012	Feasibility	…
Orocobre	Salar de Olaroz	Argentina	B	16,500	2012	Feasibility	200
Canada Lithium	Quebec Lithium	Canada	M	22,700	2013	Financing	202[4]
Simbol Materials	Salton Sea	USA	B	16,000	2013	Feasibility	…
Nordic Mining	Llantta	Finland	M	3,900	2013	Feasibility	…
Western Lithium	Kings Valley	USA	M	21,200	2014	Feasibility	427[4]
Lithium Americas	Cauchari	Argentina	B	20,000	2014	Feasibility	217
Total				**170,100**			
Sub-total brine				**52,500**			
Sub-total mineral				**117,600**			

Business: Mining leadership
(Source: 2010 Roskill Report)

- *2010 Forecast 2015*
  - *170,000 tn LCE new projects*
  - *200,000 of existing producers*
- *2018*
  - *From Brines 14,000 (17,500) Orocobre*
  - *China?*
  - *Total 250,000*



Local Complexities: Perceptions

- ***Argentina , Chile , Bolivia different countries***
- ***Specially Mining culture and development***
- ***Argentina Federal Country, Provinces resources owner, however taxes mainly for Federal Administration***
- ***Aboriginal Communities***
- ***Local Suppliers***

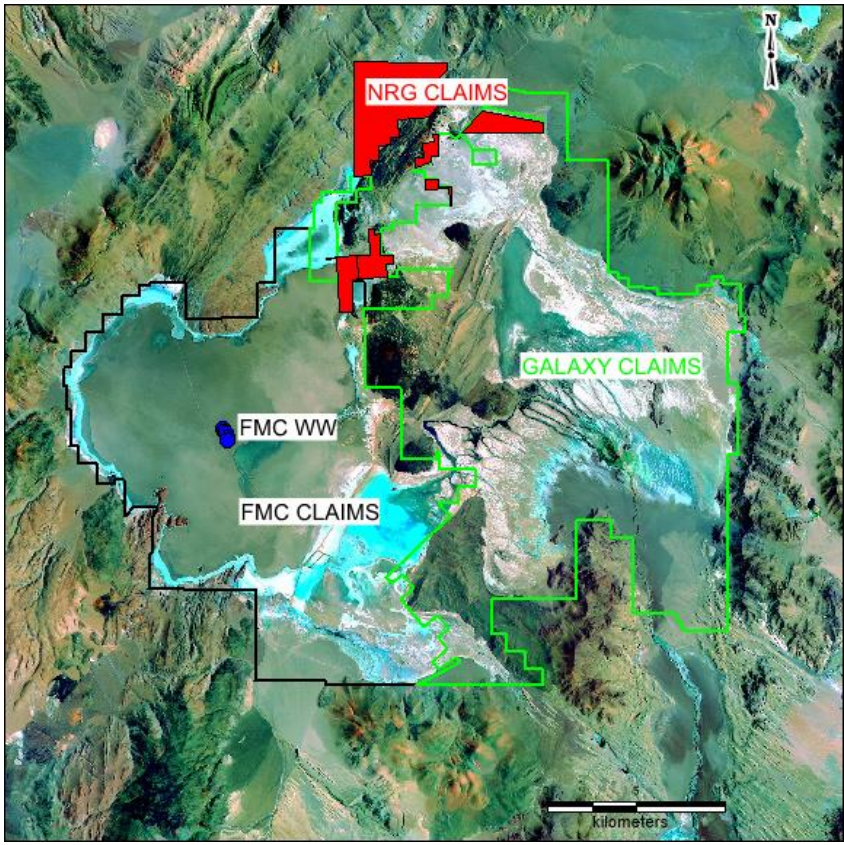
Puzzle Resolution: What is NRG?

- Team with experience and flexibility: Technically and Management skills
- Fast development of projects
- Low risk exposition based on deep knowledge in technical advantages and disadvantages

NRG Hombre Muerto North Lithium Project
Salta, Argentina

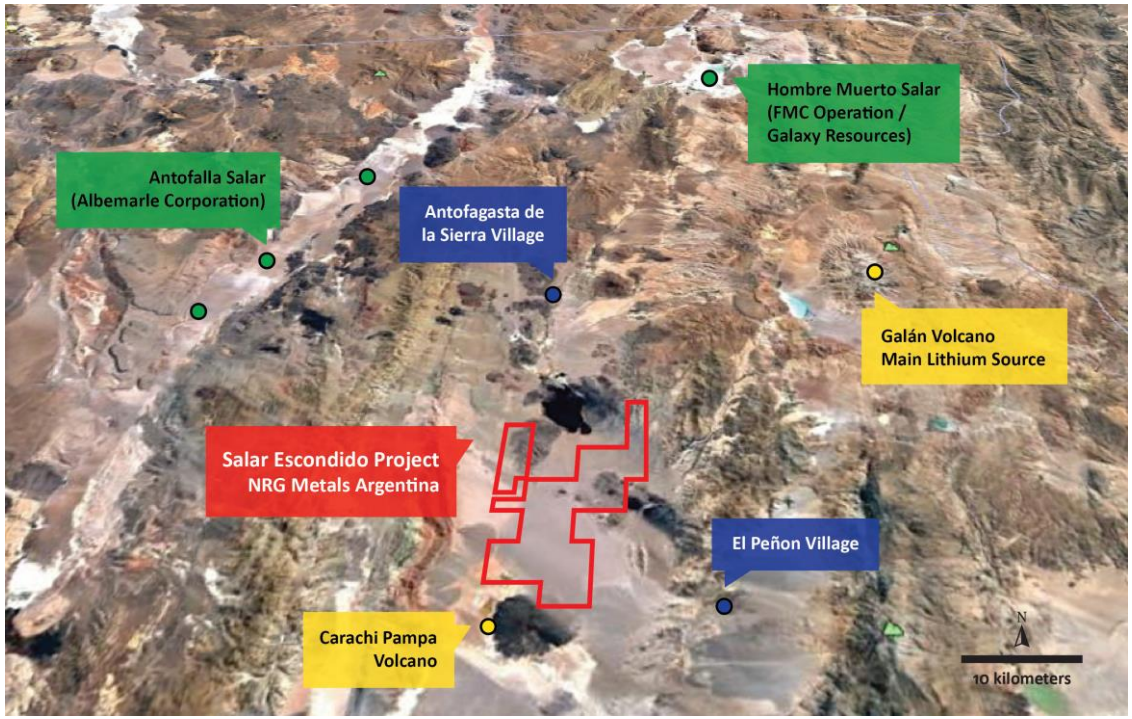
Hombre Muerto Norte

- **Property package are six concessions in northern part of the Hombre Muerto Salar..**
- **Project concept is to rapidly develop a 5,000 tpy operation.**
- **A project of this size will have an uncomplicated production system and a minimal environmental footprint.**



NRG Salar Escondido Project
Catamarca, Argentina

- NRG controls a the basin of Carachi Pampa a total of 29,192 hectares with a discovery of a paleo Salar in a good infraestructure/weather area.
- Pipeline for step growing and chemistry synergy
- 100 km south of HMN



Production & Management Concept

- Sizing 5,000 tpa modules
- Weather and ponds management
- Open to new potential Scenarios
- Purification and micronizing concept
- Improvements at plant design.
- Shared Value Philosophy

NRG METALS INC.

TSX-V:NGZ OTCQB:NRGMF Frankfurt:OGPN

開飛 CHEMPHYS

Puzzle Model Resolution
Thank you!