

## The UN's key recommendations on lithium development

### 1. Favouring brine extraction

Brine backed on an economic basis compared to spodumene, and environmental grounds saying it was more "benign"

### 2. Andean salt flats

Chile, Argentina and Bolivia highlighted as world's most commercially and environmentally viable lithium resources

### 3. Supply security

Large resources of South American brine deemed low risk, future lithium supply

### 4. Battery recycling priority

UN deemed it essential that producers of lithium batteries also introduce recycling technologies

### 5. Cost of lithium no issue

The cost of lithium carbonate compared to the battery is so low (under 5%) it is not a concern

### 6. Natural resource rights

The UN backed the countries of Latin America to exercise their sovereign rights over their lithium resources

### 7. Co-production diversification

Essential business opportunities lie in co-production of potash, nitrates, magnesium and iodine

### 8. Impact of brine on environment

Comprehensive impact assessments and monitoring was deemed "crucial" to minimise impact on regional ecosystems

### 9. Media and communications

Comprehensive periodical reporting is "an essential precondition for effective information sharing [and] transparency"

### 10. Benefits for indigenous communities

Greater efforts needed to enhance benefit on local population and indigenous people. Too much emphasis on importing skills in mining at present

### 11. South American co-operation

Countries, institutions and companies should work together and share information which could lead to "substantial mutual benefits"

### 12. International co-operation

Scientific, technological and financial assets of the developed world should support the developing countries of Latin America

Source: The United Nations Department of Economic and Social Affairs; the United Nations Economic Commission for Latin America and the Caribbean

Despite sombre statistics for the West, it is widely projected that mobility and the number of automobiles will continue to increase worldwide, in particular in the developing countries. Many vehicle manufacturers have announced plans to produce hybrid and/or plug-in electric vehicles (HEVs and EVs) with Li-ion batteries, and to significantly increase their market share in the future.

Latin America, given its vast lithium reserves, appears well-placed to serve the expected rapid expansion of Li-ion battery-based electric vehicles.

But, as the UN summarised, in spite of these factors it is essential for long-term sustainable development that the countries which produce Li-ion batteries also consider the lifetime of their products. These countries must also develop and test, plan for and introduce Li-ion battery recycling technologies; initial efforts are under way to enhance necessary standardisation and the required regulatory framework.

### Government co-operation

Latin American countries exercise their sovereign rights in natural resource development. Consequently, many of these governments are presently reviewing the applicable national legislation to address issues such as promotion strategies and investment, enhancing productivity, providing employment opportunities, and maximising incomes and export revenues from lithium operations.

As such, one factor the UN discussions touched upon was the co-production possibilities of other valuable minerals associated with salt brines; including potassium, magnesium, nitrates, and iodine, among others. Similarly, lithium extraction technologies offer opportunities to exploit the solar technology required for evaporation.

More politically-focused is the opportunity for lithium-rich countries to co-operate with one another during key development stages. As the UN concluded, the countries, institutions and companies engaged in the production of lithium carbonate in Latin America potentially share various common interests. Such interests may prompt further exploration of the opportunities for deeper regional co-operation and information exchange that could lead to substantial mutual benefits.

Owing to this, a significant recommendation during the meeting was greater international co-operation at various levels, including scientific, technological and financial. This should, the UN asserted, support the efforts of developing Latin American countries to enhance national and regional sustainable development, including in the mining sectors.

## Global production of automobiles (2008-2009)

Country	2008	2009	Annual change (%)	Ranking
Brazil	3,215,976	3,182,617	-1.0	6
Canada	2,082,241	1,490,632	-28.4	11
China	9,299,180	13,790,994	+48.3	1
Czech Republic	946,567	974,569	+3.0	15
France	2,568,978	2,047,658	-20.3	9
Germany	6,045,730	5,209,857	-13.8	4
India	2,332,328	2,632,694	+12.9	7
Iran	1,274,184	1,395,421	+9.5	12
Japan	11,575,644	7,934,516	-31.5	2
Mexico	2,167,944	1,561,052	-28.0	10
South Korea	3,826,682	3,512,926	-8.2	5
Spain	2,541,644	2,170,078	-14.6	8
Thailand	1,393,742	999,378	-28.3	14
UK	1,649,515	1,090,139	-33.9	13
USA	8,693,541	5,708,852	-34.3	3
Subtotal	59,613,896	53,701,383	-9.9	
<b>WORLD TOTAL</b>	<b>70,757,299</b>	<b>61,714,689</b>	<b>-12.8</b>	

\*Top 15 producers only

Source: International Organization of Motor Vehicle Manufacturers (OICA)

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