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**STRATEGY PAPER ON
ALUMINIUM TARIFFS FOR INDIA**

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The Age of Aluminium

Copper has been in widespread use for over 7,500 years, bronze (copper with tin) for about 4,000 years, and iron and steel for over 3,000 years. But the age of aluminium is just beginning. It was born in 1886, with the first process for smelting aluminium in quantity, invented simultaneously by Charles Martin Hall and Paul Heroult. It was a long time coming. More than 7,000 years ago, Persian potters made their strongest pitchers and bowls from a clay containing an aluminium oxide—what we now know as alumina. Thirty centuries later, ancient Egyptians and Babylonians were using other aluminium compounds in fabric dyes, cosmetics and medicines. Still, no one knew about aluminium. No one had ever seen it. Though it is the most abundant metal in the earth's crust, it does not occur naturally as a metal. Finally in 1808, Sir Humphrey Davy proved the existence of aluminium and gave it its name. Soon after, Dutch physicist Hans Christian Oersted managed to produce a few droplets of the metal. Others improved his process until in 1869, about two tons of aluminium were produced. That brought the cost down from \$545 to \$17 a pound, about the same as silver—a reasonable price for tableware at the French Court, a crown for the king of Denmark, and a cap on the Washington Monument (It is still there).

Aluminium is one of the most difficult metals to extract. It is always found locked in combination with other elements such as oxygen or sulphur, as part of various aluminium-bearing minerals—notably bauxite. Once converted into its metallic state, aluminium is like no other material on earth. Its future is bright because its

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The views expressed in the Paper, however, are his personal.

combination of useful properties is extraordinary. Indeed, it has often been touted as the metal of the twenty-first century. Aluminium is produced from alumina through a smelting process. Aluminium has a variety of applications such as in power transmission and distribution, manufacture of aircrafts, spacecrafts, kitchenware, architectural fittings, grain silos, industrial explosives, automobiles, etc. and also in the defence sector. Aluminium is...

1. Light in weight—about a third as heavy as copper or steel.
2. Highly resistant to corrosion.
3. Strong and can be made stronger by adding small amounts of other metals in alloys. Some alloys of aluminium are stronger than steel, giving them strategic importance in the defence, aviation and space industries.
4. An excellent conductor of heat and electricity.
5. An excellent reflector of heat and light.
6. Non-magnetic, a valuable property around compasses or sensitive electronics.
7. Non-toxic, thus often chosen to package foods, beverages, and medicines.
8. Outstanding in cryogenic properties—strong, not brittle in intense cold.
9. Highly workable, capable of forming by all known metal-working processes.
10. Naturally good looking.
11. And eminently recyclable. Aluminium pays its own way through the recycling loop. And making aluminium from recycled scrap takes only 5 per cent of the energy it would take to make new metal from ore.

Indian Aluminium in the Global Context

India has large reserves of bauxite estimated at about three billion tonnes (proved + probable + possible), out of a total of 40 billion tonnes in the world. It has confirmed reserves of about 1.5 billion tonnes of high-grade metallurgical bauxite, placing the country fifth in rank in the world, next only to Guinea, Brazil, Australia and Jamaica.

Table 1
Bauxite Reserves and Production

<i>Country</i>	<i>Reserves</i> Mill. Tonnes	<i>%</i>	<i>Production</i> Mill. Tonnes	<i>%</i>
Guinea	7400	29.6	17	13.5
Brazil	3900	15.6	9	7.1
Australia	3200	12.8	48.3	38.3
Jamaica	2000	8.0	12	9.5
India	1500	6.0	6.6	5.2
China	720	2.9	9	7.1
Guyana	700	2.8	2.2	1.7
Surinam	580	2.3	3.6	2.9
Other	5800	20.0	18.3	14.5
TOTAL	25000	100.0	126	100.0

Even at an anticipated consumption of seven million tonnes per annum of bauxite, these reserves are expected to last for about 425 years, the confirmed deposits alone will last over 200 years. The actual consumption in 1997 was 5.8 million tonnes. India is, however, a relatively minor player in the global aluminium market as would be clear from the following table:

Table 2
Major Aluminium Producing Countries/Regions (1997)

<i>Country</i>	<i>MT</i>	<i>%</i>
1. USA	3.603	16.5
2. Canada	2.328	10.6
3. Europe	3.46	15.8
4. Oceania	1.804	8.3
5. Latin America	2.116	9.7
6. Russia	2.906	13.3
7. China	2.046	9.4
8. India	0.554	2.5
9. Rest of Asia	1.27	5.8
10. CIS & E.Europe	0.668	3.1
11. Africa	1.106	5.1
GLOBAL	21.861	100.0

Table 3

Major Global Players in Aluminium

<i>Company</i>	<i>Enterprise Value(US\$B)</i>
Alcoa	17.55
Alusuisse-Lonza	7.49
Alcan	6.89
Reynolds	5.61
Pechiney	4.49
Comalco	3.15
Kaiser	1.39
Hindalco	0.97
Nalco	0.59
Capral	0.33

Aluminium consequently has significant industrial and economic potential for India as this is the one metal for which the country has abundant raw material. While India's bauxite reserves account for 7.5 per cent of the world's deposits, its bauxite production was only 4.6 per cent of the world total in 1997, and aluminium production only 2.5 per cent, indicating the scope and need for new capacities to meet growing internal demand and for sizeable exports on a long-term basis. Despite the comparative advantage that India enjoys in the sector, aluminium product penetration in India is abysmal not only by global market standards, but also by emerging market norms. While per capita aluminium consumption is less than 1 Kg in India, it is between 25-30 Kg in Japan and the USA. India's per capita consumption is also a fourth of the average consumption in emerging markets. The strong potential for aluminium demand growth in India is also underscored by the fact that currently aluminium is used in only about 300 commercial applications in the country, compared to more than 2500 known applications in developed countries such as the US. On the external front, in view of comparative advantage enjoyed by India, coupled with poor natural resource endowment of other non-ferrous metals like copper, lead, zinc, tin, etc. where the country is heavily dependent on imports, the aluminium sector is strategically poised to bolster the balance of

payments in general, and to help improve the overall export-import balance in the non-ferrous metals sector in particular.

Installed Capacity of Aluminium

Aluminium production in India started in 1943 with a modest capacity of 25,000 tonnes per annum. India was a net importer of aluminium till 1987-88, when NALCO went into commercial production. Since then, the country has been more or less self-sufficient in aluminium, in fact producing a little more than what is actually consumed within the country. About 45 per cent of the primary aluminium capacity is in the public sector. There are seven smelters with a total installed capacity of 7,14,000 TPY. Two plants with a total capacity of 3,30,000 TPY are in the public sector (NALCO and BALCO), while five are in private sector. INDAL has three smelters operating at Allapuram, Hirakud and Belgaum which are supported by alumina plants at Muri in Bihar and Belgaum in Karnataka. The installed capacities of the five primary producers of aluminium in the country are indicated below. In addition, there is a modest capacity, mainly with INDAL, for converting scrap into metal. INDAL has recently been taken over by HINDALCO, giving the latter just over 50 per cent of the total installed capacity of aluminium production in the country.

Table 4

Installed Capacities and Aluminium Production

	Installed Capacity: TPA				
	1995-96	1996-97	1997-98	1998-99	1999-00
Public Sector	330000	286711	296085	289199	238050
307008					
NALCO	230000	192288	203823	146206	212663
BALCO	100000	94423	92262	91844	94345
Private Sector	384000	244883	224887	264980	307203
310984					
HINDALCO	242000	175398	164558	200304	240296
INDAL	117000	54084	37370	38823	42193
MALCO	25000	15401	22959	25853	24714
TOTAL	714000	531594	520972	545253	617992

Current Aluminium Scenario in India

Till quite recently, the Indian economy was relatively closed. The general drift of government economic policy during the last few years, however, has been towards liberalisation in the domestic sector, and greater outward orientation in trade policy in the external sector. As a result, the Aluminium Control Order, which ensured cost-plus returns to aluminium companies, has been withdrawn, and domestic prices are now determined by the market, and increasingly by the London Metal Exchange. Entry barriers in the industry have also been removed, and foreign investment freely allowed, so that it is now open to competitive pressures. Likewise, tariffs have been progressively lowered from over 100 per cent to about 30 per cent at present, and it is almost certain that these would fall further as India has joined the WTO regime, even though India has still not bound itself to maximum tariffs on non-ferrous metals. In other words, while liberalisation is likely to bring in fresh private investment, including foreign direct investment, in the aluminium sector, it has also ushered in an era of volatility and competitiveness for existing enterprises, including those in the public sector. Such enterprises, even though they may be profit making, are exposed to greater and greater market risk.

Given the natural resources endowment, growing demand for aluminium and its alloys, economic opportunities and scope for exports, India can produce alumina at internationally competitive prices, making NALCO arguably the cheapest producer of alumina in the world. On account of infrastructural weaknesses, particularly in the power sector, some of this comparative advantage is lost while converting alumina into aluminium, since this is very power intensive. Both NALCO and Hindalco are nevertheless among the lowest cost producers of aluminium in the world. Overall, India has been ranked as the third cheapest aluminium maker, after Australia and Canada (as in mid-1998) in the 17th Annual Report on "Aluminium Production Costs, 1998", prepared by Industry analyst Anthony Bird. The global pecking order is as follows:

Table 5

Average Cost of Production of Aluminium

Country	US\$T
Australia	960
Canada	973
India	1062
France	1068
Venezuela	1148
Brazil	1177
Norway	1198
UK	1224
Spain	1263
Germany	1280
US	1291
<i>Average</i>	<i>1149'</i>

Trends in Customs Duty on Aluminium in India

Till 1996-97, the basic customs duty on primary aluminium and scrap was generally lower than that on fabricated products. The customs duty also fell over the years in line with trade policy reforms that aimed at opening up the economy. This trend was sharply reversed in 1997-98. The ostensible reason being the steep fall in aluminium prices and subsequent revenue enhancing measures. In the same year, the duty on primary, scrap and secondary aluminium was also equalised. In the following year, the duty on scrap was lowered by 10 per cent, thereby opening up a 10 per cent duty differential between aluminium scrap and metal, primary and pre-fabricated.

Conversion of scrap into metal uses only about 5 per cent of the energy required to reduce alumina into metal. Moreover, recycling is environmentally friendly as it does not release greenhouse gases like CO₂, and some other toxic substances. Aluminium is also fully recyclable, a process which can conserve a precious non-renewable resource like bauxite, apart from being very cost-effective. For these reasons, about 30 per cent of the global aluminium metal production

is scrap-based, and the duty on scrap is generally lower than that on primary metal. Since the use of scrap is not widespread in India, *The Report of the Working Group on Non-Ferrous Metals* (Ninth Five Year Plan 1997-2202), dated August 1996, had specifically recommended that "recycling of scrap which requires less energy has to be encouraged to meet the gap between the domestic demand and supply. This can be achieved with import of scrap. This import needs to be promoted with low duty structure to make metal production competitive" (p.I.71). Since recycling of aluminium scrap, however, has not so far been attempted in a big way in the organised sector in India, with the exception of INDAL, the lowering of customs duties on scrap in the 1998-99 budget was in line with these recommendations.

Table 6
Changes in Basic Customs Duty on Aluminium (%)

	Scrap	Primary	Secondary
1993-94	25	25	25-70
1994-95	10	10	10-50
1995-96	10	10	10-25
1996-97	12	12	12-22
1997-98	25	25	25
1998-99	15	25	25
1999-00	15	25	25
2000-01	15	25	25

The present rate of customs duty on all categories of aluminium other than scrap, is 25 per cent *ad valorem* plus 10 per cent special customs duty plus 4 per cent SAD. The primary duty on scrap was lowered from 20 per cent *ad valorem* to 10 per cent *ad valorem* in 1998-99. *The effective rate is currently 21.91 per cent on scrap, and 33.42 per cent on all other items.*

Table 6 indicates that there have been wide annual fluctuations in the customs duty on aluminium. A likely explanation for this is that the prevailing LME price of the metal has been an important consideration in deciding the upward/downward revision of customs.

A reading of the back-files on the subject certainly gives this impression. Commodity prices, however, are notoriously volatile, and any indexing of duties to prices would make the duty structure also volatile. Such variations, moreover, are in basic conflict with our well-publicised intent to attract private investment into the mineral sector, which is a pillar of the new mineral policy. It also runs counter to our stated policy of economic liberalisation, of which tax reform is a major plank. The important point is that such sharp fluctuations in duty are not conducive to taking investment decisions, since future cash flows become unpredictable. Investors must have confidence that policy makers take a long-term view of things, since investment decisions too are long-term.

There may, of course, be some justification in aligning duties to price in areas where the industry is in its infancy, and therefore the country is not competitive for an interim period. (While the infant industry argument is often considered as the 'orthodox exception' to free trade, the issue is contentious. It is also argued that direct subsidy and devaluation are superior policy instruments since the same objective can be attained without the resultant allocative inefficiencies and anti-export bias). However, as we shall see, such is not the case in Aluminium, where the country enjoys a global comparative advantage. LME prices affect global producers all over the world, and it is in our strategic interest that tariff barriers are not raised at such times. It is true that the profits of Indian aluminium companies may suffer somewhat at such times, but their smelters would be among the last in the world to shut down on account of unprofitability. Indeed, at such times, Indian Companies can make their presence felt more strongly in world markets. Insulating the profits of aluminium Companies against the volatilities arising out globalisation is not, and should not, be a sovereign objective. The sovereign objective is to nurture a policy environment where Indian Companies become globally competitive, where investment flows into the country and where the external sector is in balance.

Major Lobbies

The Aluminium Industry in India is presently dominated by four key players, two in the public sector (NALCO and BALCO) and two in the private sector (HINDALCO and INDAL). INDAL,

till recently owned and managed by the global giant ALCAN, has recently been taken over by HINDALCO. While all the major players are vertically integrated from sourcing bauxite from captive mines and generating power through captive power plants, their product profiles are divergent. NALCO is engaged only in primary metal production, while INDAL is focussed almost entirely on downstream products. HINDALCO and BALCO are engaged in both metal and downstream production. The domestic market share of the major aluminium companies in aluminium metal and in downstream products is as follows:

Table 7
Aluminium Market Shares in India
(Current Market Share of Semi-Fab. Products)

	NALCO	HINDALCO	INDAL	BALCO	Others
Aluminium Metal	34%	40%	7%	15%	3%
Downstream					
Rolled Products	36%	34%	28%	19%	19%
Extruded Products	21%	15%	6%	5%	74%
Wire Rods	39%	30%	---	20%	20%
Foils	5%	8%	21%	---	71%

- **Rolled Products:** Transport, Packaging and Consumer durables.
- **Extruded Products:** Building, Transport and Consumer durables.
- **Wire Rods:** Electrical Sector.
- **Foils:** Flexible packaging and Cable wraps.

There are basically two opposing lobbies trying to influence customs duties in India. Primary producers and integrated producers producing adequate metal for their downstream activities want duties on primary metal and scrap to be high. Those who have to buy primary metal, such as INDAL, and other small fabricators, want duty on primary metal and scrap to be low. Both lobbies are united in the matter of high duties on secondary products, and forms the basis of the consensus in the Aluminium Association of India (AAI), the apex body of aluminium producers. The interests of the

unorganised body of aluminium consumers, who buy the metal and its products at prices way above international levels, are not reflected in the stand taken by the AAI.

Indian Aluminium Tariffs in Global Perspective

The global data on comparative customs duties does indicate that the duty on scrap is generally lower, although there is not much difference in the tariffs on metal and scrap, the tariffs on both being very low, both in developed and developing countries. The data in **Table 8** relates to 'Bound Rates', and not to the current applicable rate. It may be observed, however, that all countries are expected to reduce their tariffs at least to the bound rates by March

Table 8
Comparative Tariff Structure in Aluminium
Uruguay Round Bound Rates (Source: WTO, Geneva)

WTO Code:	Primary 7601	Scrap 7602	Secondary 7603-16
Developed Countries			
Australia	0%	0%	5%
Norway	0%	0%	6%
USA	2%	0%	4%
Canada	0%	0%	6%
Japan	0%	0%	5%
EU	6%	0%	7%
<i>Average</i>	1%	0%	5%
Developing Countries			
S. Africa	5%	5%	15%
Russia	10%	10%	15%
Brazil	15%	15%	22.50%
Indonesia	5%	0%	20%
Malaysia	5%	5%	30%
Philippines	10%	---	35%
Singapore	10%	10%	10%
South Korea	5%	3%	13%
Thailand	10%	6%	20%
Vietnam	---	---	10%
<i>Average</i>	8%	7%	19%
India	33%	22%	33%

2000. (The data relating to Russia, Vietnam and India are applicable rates. Russia and Vietnam have only observer status in WTO, while India does not have any bound rates in respect of non-ferrous metals.)

Level of Protection in the Indian Aluminium Sector

It would be clear from **Table 8** that there is generally a higher duty on secondary goods, although the average *level* of protection is not as high as that prevailing in India, with only the rates in Malaysia and the Philippines being comparable. However, neither of the two latter countries has any global comparative advantage in this sector. It should also be kept in mind that we are merely referring to the *nominal* tariff rate. The *effective rate* is much higher on fabricated products since the tariff on primary metal would also have to be factored in. *The effective protection offered to producers of fabricated items is extremely skewed* with integrated companies like HINDALCO who manufacture their own importables (i.e primary metal), and exporters (who are allowed duty free import of metal) enjoying much higher effective rates of protection than those who have to buy metal and scrap at prices which are way above international levels. In other words, *the higher the domestic value addition, the higher is the effective rate of protection.*

It would also be apparent from **Table 8** that even prior to the recent fall in LME prices and the SE Asian currency crisis, the Indian aluminium industry enjoyed a high level of protection, although it is globally competitive and cannot be considered to be an 'infant industry'. India has large resources of bauxite, estimated at about three billion tonnes (proved + probable + possible), out of a total of 40 billion tonnes in the world. It has confirmed reserves of 1.2 billion tonnes of high-grade metallurgical bauxite, placing the country fifth in rank in the world, next only to Australia, Guinea, Brazil and Jamaica. Both NALCO and HINDALCO are among the lowest cost producers of aluminium in the world. Overall, India has been ranked as the third cheapest aluminium maker, after Australia and Canada (as in mid-1998) in the 17th Annual Report on "Aluminium Production Costs, 1998". LME prices affect all producers across the globe, and the more efficient producers, such as NALCO and HINDALCO, should be able to absorb these price

falls better, and indeed increase their market share by edging out less efficient producers. Indian exporters of Aluminium, it may be pointed out, get a roughly 20 per cent mark-up on the FOB LME price on account of various export promotion measures (6 per cent duty draw-back and 12 per cent by way of income-tax benefits. In addition, NALCO's metal commands a 2-3 per cent premium over the LME price). If other downstream producers are not quite as competitive, this is perhaps because of the high tariffs on primary metal and scrap and/or because of technological obsolescence.

Domestic producers and the Indian Aluminium Association have long been bemoaning the exceedingly low consumption of aluminium per capita in the country, and also the relatively poor domestic demand growth for aluminium products. While there is undoubtedly a strong correlation between general growth rates and aluminium consumption, the substantial spread between global prices and Indian prices is a major factor coming in the way of stronger consumption growth. Since Aluminium is also to a large extent substitutable by wood, plastic, etc, there is moreover a latent demand which can be unlocked by passing, on the comparative advantage that India enjoys in Aluminium to downstream users of the metal. Aluminium users in India should, in fact, be in a position to purchase aluminium at a discount to global prices, rather than at a premium, as is presently the case. Unfortunately, neither domestic producers, nor the Aluminium Association, who are generally consulted while formulating views of tariffs, reflect the interests of aluminium users. Only, if we expose Indian aluminium producers to international competition would there be pressure to reduce costs, induct state of the art technology and remain globally competitive. The real cost of protection, or welfare loss, is apparent from the fact that companies such as BALCO, using long outdated technologies, can still make healthy profits without modernisation. Reduction in duty would also help demand pick up as the spread between domestic and international prices would be reduced.

LME Prices and the Indian Aluminium Industry

Prices quoted on the London Metal Exchange (LME) are the benchmark for Aluminium globally. Like commodities generally,

aluminium prices are very volatile. Primary Aluminium prices reached their zenith in 1980 on the LME at 2855 U.S. dollars per tonne. With industrial recession in the developed countries, dumping of aluminium by CIS States, the price of aluminium touched its nadir during November 1993 at 1040 U.S. dollars a tonne. LME prices of the metal subsequently rose sharply during the second half of 1994. The average price during the four financial years ending 1997-98 was in the range of 1500-1700 U.S. dollars per tonne. LME prices, however, began falling continuously from August 1997, the average monthly price in November 1998 being U.S. dollars 1295 U.S. dollars per tonne, the first time since April 1994 that LME monthly average prices dipped below 1300 U.S. dollars per tonne. By the end of 1999, average prices have recovered to about 1600 U.S. dollars per tonne.

The monthly average LME prices from April 1993 are given below:

Table 9
LME Prices Since 1993-94 (U.S. \$)

	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000
APR	1,109	1,279	1,849	1,588	1,562	1,419	1,279
MAY	1,124	1,323	1,763	1,590	1,626	1,365	1,324
JUN	1,166	1,401	1,780	1,483	1,568	1,308	1,316
JUL	1,203	1,493	1,860	1,459	1,592	1,310	1,404
AUG	1,172	1,456	1,889	1,464	1,711	1,311	1,432
SEP	1,116	1,570	1,761	1,408	1,611	1,343	1,493
OCT	1,087	1,698	1,675	1,337	1,608	1,304	1,475
NOV	1,040	1,892	1,654	1,450	1,599	1,295	1,473
DEC	1,095	1,879	1,657	1,501	1,531	1,249	1,555
JAN	1,175	2,061	1,590	1,576	1,486	1,219	1,680
FEB	1,270	1,917	1,592	1,580	1,466	1,187	1,671
MAR	1,289	1,806	1,613	1,632	1,438	1,182	1,584
Avg	1,154	1,648	1,724	1,506	1,567	1,291	1,474

It would be apparent that metal producers the world over faced one of the worst price recessions on record in the last quarter of 1998, and the first quarter of 1999. However, with growth rates in south-east Asia picking up, and fears of a global recession having died down, prices have since started picking up, and at over 1600 U.S. dollars per tonne are currently at around the same level as they were in 1997-98. The expectation of *BARCLAYS CAPITAL*, whose group is a primary member of the LME, and also HSBC, is that prices in 2000 would remain over 1600 U.S. dollars per tonne.

Profits of Indian Aluminium producers are basically indexed to average aluminium prices prevailing during a financial year, although high tariffs ensure a good return even when LME prices are low. At such times, there is little incentive to export, and tariff levels are exploited to the maximum extent possible. When LME prices are high, the Industry is unable to reap to full benefit of the increase, for if the tariff spreads are exploited to the full, domestic demand would fall sharply. Exports then become an increasingly attractive option.

Tariff Fixation in the Aluminium Sector : Long-Term Strategy

Based on economic theory and international practice, the following factors should inform India's policy in fixing tariffs in the aluminium sector:

(a) Linkage to general trade policy

Tariffs in the aluminium sector cannot be seen in isolation from the country's general trade policy. The country is gradually moving towards a regime of low tariffs in line with WTO commitments and norms. The speed of the downward movement would hinge on WTO commitments, competitive status of the domestic industry, the state of the fiscal and tax reform.

(b) Adherence to global norms

Even though India does not presently have any WTO commitments in respect of aluminium, it is likely that there would be pressure in the coming years to make such commitments, especially since India is globally competitive in this area. Besides, commitment or no commitment, the economic argument in favour

of moving closer to free trade, *i.e.*, a low tariff regime, is unassailable. It is only the speed and timing that is arguable. In view of India's inherent competitiveness in the sector, tariffs can be lowered sooner rather than later. We also need to keep in mind that BALCO is going to be privatised shortly. International experience in privatisation indicates that the full benefits from privatisation flow only in a competitive environment which includes, *inter alia*, exposure to international competition.

(c) Consistency and stability

If substantial amounts of investment are to flow into the aluminium sector, as is hoped, it is imperative that tariffs do not vary idiosyncratically from year to year. The market should be aware of the principles governing tariff fixation, and have an idea of the medium to long-term tariff reduction scenario. If tariffs are to be lowered, this should be done gradually, spaced out over a number of years so as to enable existing producers to adjust better. Ideally, Government should be in a position to spell out the tariff reform programme in advance, so that the risks on future cash flows are minimised. This would facilitate robust investment decision-making.

(d) Bolstering BoP

It is well known that tariffs have an inherent anti-export bias, as high levels of protection are little inducement to become globally competitive and target external markets. However, given India's inherent comparative advantage in the sector, India has the potential to become a major exporter of aluminium. This can only be ensured through a low tariff regime. The impact of low aluminium tariffs would also indirectly boost exports in other sectors where aluminium is an input, since these industries would now be able to benefit from India's comparative advantage in this sector by sourcing aluminium at prices slightly lower than global averages, something they have hitherto been denied, except through the duty drawback route.

(e) Neutrality and transparency

Trade policy in the aluminium sector should not be tilted in favour of any particular lobby, not merely because we should be

fair, and seen to be fair, but because a neutral policy would ensure minimum distortions in the market. Differential tariffs on different categories--scrap, metal and pre-fabricated metal -- exert a resource pull away from where the country may have a comparative advantage.

A common practice in several developing countries is to have a scale of nominal tariffs, which tend to increase as more value is added to a product. Thus raw-materials have nil or nominal tariffs, intermediates have low tariffs and finished goods attract the highest nominal tariffs. While the rates of effective protection depends on the ratio of imported products and domestic value-addition, generally speaking, the higher the value-addition, the higher the rate of effective protection.

While encouraging value-addition with the country is a desirable macro-economic objective, this scale has at least three distinct disadvantages. First, the maximum resource pull is exercised by the finished product, which enjoys the highest rate of protection, even though the comparative advantage of the country may lie in some upstream activity. Thus, in the case of aluminium, higher effective protection of the downstream activity may exercise a resource pull away from primary metal production and towards secondary products. Secondly, differential tariffs mean that the State, rather than the market, decides the direction of resource pulls. The history of international development, however, has shown that Governments are frequently not the best judges of potential winners. This can protract the 'infant industry' phase, and consequently the movement towards free trade, indefinitely. Thirdly, the rate of effective protection varies irrationally from case to case depending on the proportion of imported goods. Thus, downstream producers who buy metal, such as INDAL, and several other smaller units, enjoy a much lower rate of protection than other integrated producers who produce adequate amount of primary metal.

The corrective suggested for these disadvantages is a uniform rate of tariffs on all imports, for only then is there an equal rate of protection for all import substitution activities. However, unless the total level of protection (valued in hard currency) is lowered, this may mean an increase in duty on raw-materials and intermediates, and a decline in the rates on finished goods. In a simple, common-

sense, it may appear contrary to the infant industry logic, and for this reason might encounter some political opposition. However, in terms of effective rates, finished products are neither more nor less protected than other goods, and therefore distortionary resource pulls in the economy are avoided. In the case of Aluminium specifically, where the duty on upstream and downstream is the same (apart from scrap), there would actually be a reduction in the duty on upstream products.

Except in the limited case of infant industries, tariffs are a sub-optimal instrument for encouraging value-addition within the country. If a country has a comparative advantage in a particular area, but investments do not flow in to add value, we need to examine whether markets are functioning efficiently. It is entirely possible that inefficient infrastructure markets, with their elaborate cross-subsidy structures in the power, transportation and financial sectors, are coming in the way of value-addition within the country in the aluminium sector. These market failures cannot, and should not, be addressed by keeping tariffs high on downstream activities, but by addressing the market failures themselves.

Likely Impact of Reduced Tariffs on Metal and Scrap

Tables 10-12 are based on a simple spreadsheet-based programme which simulates the difference between the domestic price of metal, the landed costs of imported metal and scrap, and also the export realisation of NALCO. The exogenous variables driving the simulations (LME Prices, Domestic price of aluminium, Discounts, Taxes, Exchange rates, Transportation costs, and Export incentives. The price of scrap is assumed to be 90 per cent of the LME price of primary metal) are at the top of the spreadsheet. The simulation in Table 10 shows that, at current price and duty levels, the cost of imported scrap is about Rs. 10,000 per tonne lower than the same as domestically produced aluminium, while imported metal is costlier by more than Rs. 5,000 per tonne. There is little incentive for NALCO to export, since it earns about Rs. 10,000 per tonne more on domestic sales, even after export benefits are factored in. At this domestic price, it would be profitable for NALCO to export

only if LME prices were above 1650 U.S. dollars per tonne. Thus, when LME prices are low, domestic aluminium companies can fall back on the domestic market on account of high tariffs.

Table 10

Tariffs and Aluminium Prices : Current Position

LME	1550	ER	43.5	Basic P	81450	sur	0.1
BCD	0.25	CIF	70	Discount	0.0225	BCD_SP	0.15
CVD	0.16	Transp.	2000	Excise	0.16	NX	0.18
SAD	0.04	Scrap	0.9	CST	0.04		
		METAL		SCRAP		Domestic	NalcoX*
		CIF price	70470	63423	79617	79561.5	
		Add BCD	19379	10465	0		
		Add CVD	14376	11822	12739		
		Add SAD	4169	3428	3694		
		Modvat Credit	-14376	-11822	-12739		
		Add. Transp.	2000	2000	2000		
		Cost at plant	96018	79316	85312		
* Nalco gets an 18% mark-up on the LME FOB Price of metal for its exports :							
6% duty drawback scheme		10% Income Tax benefits		2% Premium			

The simulation in Table 11 indicates that if the basic custom duty were lowered to 10 per cent, and that on scrap to 7 per cent (i.e, to roughly the levels prevailing in other developing countries) from the current level of 25 per cent, and aluminium prices averaged 1500 U.S. dollars per tonne, the price of domestic metal would be higher than that of imported metal by about Rs. 4,000 (the two prices would equate at an LME of just under 1600 U.S. dollars),

and imported scrap would be cheaper than domestic aluminium by about Rs. 10,000 (Table 11). Such reductions in duties would mean that domestic companies may have to reduce their prices by about Rs. 5,000 per tonne to remain competitive.

Table 11

Tariffs and Aluminium Prices

LME = US\$ 1550; Basic customs duty = 10%							
LME	1550	ER	43.5	Basic P	81450	sur	0.1
BCD	0.1	CIF	70	Discount	0.015	BCD_SP	0.07
CVD	0.16	Transp.	2000	Excise	0.16	NX	0.18
SAD	0.04	Scrap	0.9	CST	0.04		
		METAL	SCRAP	Domestic	Nalco X*		
CIF price		70470	63423	80228	79561.5		
Add BCD		7752	4884	0			
Add CVD		12515	10929	12837			
Add SAD		3629	3169	3723			
Modvat Credit		-12515	-10929	-12837			
Add. Transp.		2000	2000	2000			
		Cost at plant	83851	73476	85951		
*Nalco gets an 18% mark-up on the LME FOB Price of metal for its exports::							
		6% duty drawback scheme					
		10% Income Tax benefits					
		2% Premium					

Tariff Fixation: Medium to Short-Term Strategy

The basic customs duty on primary metal, scrap and secondary products should be decreased over the next 3-5 years to bring them on a par with global norms. The simulation in Table 12 shows that an immediate 5 per cent reduction (i.e at the current LME of about 1550 U.S. dollars) across the board would still leave the price of

imported metal higher by about Rs. 6,000 per tonne, while the price of imported scrap would be lower than that of domestically produced metal by roughly Rs. 10,000.

The impact of such a reduction at current LME prices on the price of imported metal and scrap would be as follows:

Table 12

Impact of Immediate 5% Across the Board Tariff Reduction

LME	1550	ER	43.5	Basic P	81450	sur	0.1
BCD	0.2	CIF	70	Discount	0.015	BCD_SP	0.1
CVD	0.16	Transp.	2000	Excise	0.16	NX	0.18
SAD	0.04	Scrap	0.9	CST	0.04		
		METAL	SCRAP	Domestic	Nalco X*		
CIF price		70470	63423	80228	79561.5		
Add BCD		15503	6977	0			
Add CVD		13756	11264	12837			
Add SAD		3989	3267	3723			
Modvat Credit		-13756	-11264	-12837			
Add. Transp.		2000	2000	2000			
Cost at plant		91963	75666	85951			
*Nalco gets an 18% mark-up on the LME FOB Price of metal for its exports::							
		6% duty drawback scheme					
		10% Income Tax benefits					
		2% Premium					

Government should make clear the medium and long-term objective to reduce duties gradually in line with global norms, and that the differences in duty between primary metal, scrap and fabricated items would not be great.

The pace and rate of reduction would hinge on contingent factors such as prevailing prices, fiscal situation, and the general approach to tariffs/WTO adopted by the country. The period of tariff adjustment should be such so as to minimise pain of adjustment for the domestic industry.

Tariffs and Privatisation

BALCO is slated for privatisation shortly. A fear is sometimes expressed that if the other public sector aluminium company, viz. NALCO, is also privatised this may result in a virtual private monopoly in the domestic aluminium market. The likely scenario is as follows: HINDALCO recently bid aggressively for ALCAN's share in INDAL, which has since passed into HINDALCO's hands. What if HINDALCO were to bid equally aggressively for BALCO, and acquire control, and then set its eyes upon NALCO?

If HINDALCO were to acquire BALCO, it would acquire market dominance in downstream products, controlling over 80 per cent of the production of Rolled Products, over 50 per cent of Wire Rods, about 30 per cent of Foils, and about 25 per cent of extruded products. If it were to acquire NALCO subsequently, its market dominance would then extend to primary aluminium as well. Put arithmetically, the worst-case scenario, inclusive of planned expansions in capacity, is as follows:

Table 13

Privatisation and Market Dominance in Primary Aluminium

Company	Present Capacity	% of Total	After Expansion	% of Total	With BALCO	% of Total	With NALCO	% of Total
NALCO	2,30,000	32.2%	3,45,000	37.0%	3,45,000	35.8%		
HINDALCO	3,59,000	50.3%	4,94,000	54.9%	5,94,000	61.6%	9,39,000	97.4
BALCO	1,00,000	14.0%	1,00,000	12.9%				
MALCO	25,000	3.5%	25,000	3.2%	25,000	2.6%	25,000	2.6
Total	7,14,000		9,64,000		9,64,000		9,64,000	

Domestic market dominance, however, is not the same as market power. Current thinking on monopoly has moved away from the notion of number of players, focusing instead on market power and competitive markets. There are sectors, such as Telecom, Power, Roads, etc. where ('natural') monopolies prevail, but where it has nevertheless been possible to evolve structures, involving features such as (bottle-neck pricing) and price-caps, to simulate competition

and limit market power. Aluminium, however, is not a natural monopoly, and there is no independent regulatory authority to limit market power. However, it is also a fully tradeable commodity, with a global benchmark LME price, and a number of players in the international market. It is evident that even if all Indian Companies were to merge into one, the resultant Indian Company would be a minor player on a global scale, with limited market power, accounting for about 5 per cent of global alumina, and 2.5 per cent of the global aluminium, production presently. The combined market power of Indian aluminium companies is unlikely to influence LME prices in a significant manner.

Table 14

India's Share in Global Alumina and Aluminium Production (MT)

	Alumina Production		Indian share	Aluminium Production		Indian share
	World	India		World	India	
1997	34.8	1.6	4.6%	21.8	0.5	2.3%
1998	36.1	2	5.5%	22.7	0.5	2.2%
1999	36.9	1.9	5.1%	23.7	0.6	2.5%

The extent to which any Indian aluminium company can use its dominant position in the domestic market to exercise market power depends on the extent of India's integration into the global aluminium market. While all kinds of aluminium, including scrap, are on OGL and freely importable, there is a substantial spread between global and domestic market prices on account of India's relatively high tariffs. It is easy to see how such distortions operate in price fixation in the Indian aluminium sector. Although aluminium tariffs are in the region of 33 per cent *ad valorem*, the extent to which this price advantage is exploited by the aluminium sector is very variable and generally depends on the LME. When LME prices are low, there is a tendency by Aluminium producers to exploit the tariff advantage to the maximum extent so as to maintain their profit margins. Obversely, when LME prices are high, while domestic prices are also raised, demand side constraints—including the existence of close substitutes—prevent aluminium producers

from fully exploiting the tariff advantage, and thereby enhancing their profit margins to the maximum extent theoretically possible. At a certain LME it becomes more profitable to export rather than to raise domestic prices. NALCO and HINDALCO are the two major producers of aluminium in India, and the market follows their lead in price fixation in the domestic market. This State-private duopoly could well become a private monopoly if NALCO is taken over by HINDALCO. Since domestic price fixation would then be decided solely by HINDALCO, any merger of NALCO and HINDALCO can be interpreted as an anti-competitive practice.

This would not, however, be an anti-competitive practice if Indian aluminium tariffs were aligned to global levels. If and when this were to occur, no Indian aluminium player, individually or severally (at current levels of operation), would be able to influence domestic aluminium prices. Market distortions arising out of high tariffs would then be removed, the Indian aluminium market would be integrated with global markets, and domestic prices would reflect LME prices. In such a scenario, a merger of NALCO and HINDALCO cannot be interpreted as an anti-competitive practice. Indeed, such a merger may well set the resultant aluminium company on way to becoming a truly global player, provided it were to expand its operations within and even outside the country. Judging from the mega-mergers currently underway in the Aluminium industry all over the world, once India is integrated into world aluminium market there is (arguably) space for only one aluminium company operating out of India.

The inference to be drawn from the above arguments is that the privatisation of NALCO should be considered only after Indian aluminium tariffs are aligned to global levels. Even if NALCO were to pass into the control of a player other than HINDALCO, there is no guarantee that in future these two companies would not operate effectively monopolistically, or even merge. The present public-private duopoly would then become a private duopoly, or even a private monopoly, which is not desirable. The merger would, however, cease to be anti-competitive once Indian aluminium tariffs are aligned to global levels.

Concluding Remarks

Aluminium is an exciting metal, and aluminium in India has an exciting future, given India's potential comparative advantage in this sector. The sector has been opened up, and tariffs lowered, during the first phase of economic liberalisation. The Indian aluminium industry is also globally competitive, and does not need the level of protection which it enjoys at present. While such protection undoubtedly fattens the balance-sheets of Indian aluminium companies, it does not enhance their competitiveness or prepare them for a low tariff regime, which the World Trade Organisation would almost inevitably usher in the foreseeable future. Such high levels of protection, moreover, make an inherently competitive sector inward-looking, and do not provide the macro-economic push to make India a global player, which its rich and vast bauxite resources, and ultimately, its comparative advantages, warrant. High domestic prices also limit demand growth, and encourage the use of cheaper substitutes. The present policy also has a decided bias towards integrated producers of the metal, and does not pass down the comparative advantage to downstream users of the metal. However, before India can become a major global player in aluminium, infrastructural weaknesses in the economy, particularly in the power and transportation sectors, would have to be resolved. The industry cannot stay competitive for long, if it has to absorb the capital costs of setting up its own power plants and port facilities, pay monopoly prices for coal, and cross-subsidise railway passenger fares by using the monopoly railway network. While tariffs should be lowered to global norms over the medium to long-term, the differential between upstream and downstream items should be very low, and the reduction should be done in a manner which makes it easier for both the budget and the domestic industry to adjust. The privatisation of NALCO should be attempted only after tariff rationalisation so as to ensure that no private company exercises excessive market power.

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