

OUTLINE OF THE JAPANESE ALUMINIUM INDUSTRY

Japan Aluminium Association
December, 2010

1. Position of the Aluminium Industry in Japan

(1) Japan's total value of shipments

All manufacturing industries:	¥	328.0 trillion
of which		
Basic materials industry:	¥	119.7 trillion
- Metal products industry:	¥	20.9 trillion
- Non-ferrous metal industry:	¥	10.5 trillion
Assembly industry:	¥	157.8 trillion
Livelihood related industry:	¥	50.5 trillion

(2) Position of materials industry and non-ferrous metals industry in value of shipments shown in percentage, as of 2007:

Basic materials industry:	36.5	%	(Including aluminium)
Assembly industry:	48.1	%	
Livelihood related industry:	15.4	%	
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Total industry:	100.0	%	
Chemical industry:	23.6	%	
Steel industry:	17.5	%	
Metal products industry:	11.5	%	
Plastic products industry:	9.9	%	
Ceramics industry:	6.6	%	
Non-ferrous metals industry:	8.8	%	(Including aluminium)
Others:	22.1	%	
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Basic materials industry:	100.0	%	

Source: Ministry of Economy, Trade and Industry, Japan

2. Structure of the aluminium industry

The Japanese aluminium industry mainly consists of rollers, extruders, foil rollers, etc. who import most of the primary aluminium ingots for making a variety of end products in such market segments as construction and transportation. Japan has also sizable secondary aluminium industry.

3. The number of aluminium rolling mills, plants and employees (2010)

	2004	2010	Balance
Companies:	56	51	-5
Plants:	78	69	-9
Employees:	12,739	12,864	+125

Source: Japan Aluminium Association

4. Demand forecast for fiscal 2010

(1) Aluminium products

The exports to Asian region will contribute to the recovery of Japanese aluminium products demand, while domestic and U.S. markets are still sluggish and there is a concern in European economy.

Total demand for overall aluminium products in Japan for fiscal 2010 is forecast to grow by 3.5% from a year ago to 3,696,000 metric tons (based on the research conducted by the Aluminium Research Council, details of which are shown in the following table.)

DEMAND FORECAST FOR ALUMINIUM PRODUCTS IN JAPAN FOR FISCAL 2010 (April 2010 - March 2011)

Aluminium Research Council
(Unit: 1,000 MT)

Markets	FY2008	FY2009	FY2010 Forecast	09/08	10/09
Rolled products	1,044	995	1,014	-4.7	+1.9
(For auto)	(134)	(127)	(139)	(-5.2)	(+9.4)
Extruded products	792	702	741	-11.4	+5.6
(For auto)	(122)	(112)	(124)	(-8.2)	(+10.7)
Semis-Total	1,836	1,696	1,756	-9.1	+3.5
(For auto)	(256)	(239)	(263)	(-7.6)	(+10.0)
Castings	352	337	340	-4.3	+0.8
For auto	321	314	318	-2.2	+1.3
For others	31	23	22	-25.8	-4.3
Die-Castings	893	847	859	-5.2	+1.4
For auto	755	741	750	-1.9	+1.2
For others	138	106	109	-23.2	+2.8
C/DC total	1,245	1,184	1,199	-4.9	+1.3
Forgings	40	35	37	-12.5	+5.7
Electrical Wires	29	43	25	+48.3	-41.9
Others	186	154	180	-16.3	+16.9
Imports	235	222	243	-5.5	+9.5
Domestic demand	3,572	3,344	3,440	-6.4	+2.9
Exports	220	227	256	+3.2	+15.3
Total demand	3,791	3,571	3,696	-5.8	+3.5
Total automotive Aluminium shipped	1,361	1,320	1,357	-3.0	+2.8

Note: Detail may not add due to independent rounding

This forecast was released on 27th March, 2010

(2) Semi-fabricated aluminium products

Demand for all semi-fabricated aluminium products in fiscal 2010 is forecast to show recovery trend, mainly supported by demand from the automotive market. Foil demand also will increase due to capacitors and electrical appliances demands.

And extrusion products demand finally will be out of long term bottom because of the recovery of construction market.

Therefore, JAA forecasts that the total aluminium semi-fabricated products demand will increase by 4.7% to 1,974,000 tons in fiscal 2010.

Demand forecast for semi-fabricated products (1,000 MT)

	FY2008	FY2009	FY2010 Fcst.	09/08 %	10/09 %
Rolled products	1,229	1,174	1,224	-4.5	+4.3
Extruded products	801	711	750	-11.2	+5.5
Total	2,030	1,885	1,974	-7.1	+4.7
Foil	111	112	115	+0.9	+2.7

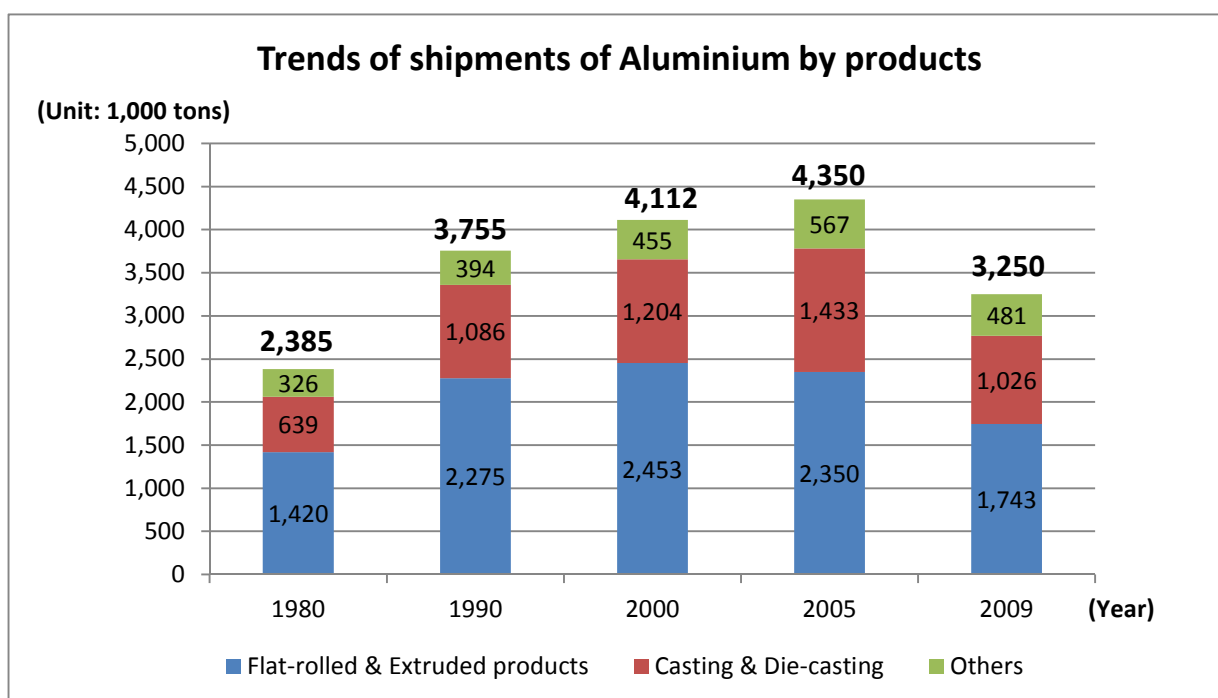
5. Demand structure and trends

(1) Shipments by products

Total shipments of aluminium products in 2009: 3.25 million tons (100%)

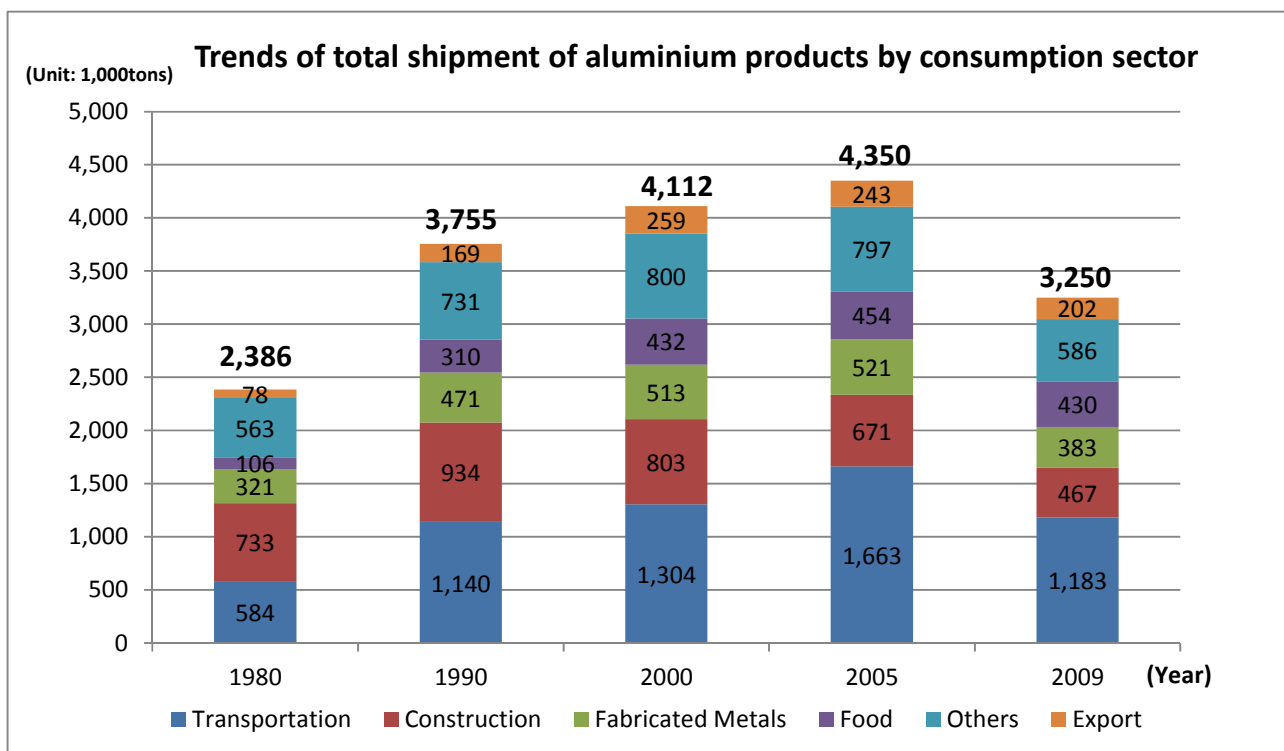
Shipments by products:

- Flat-rolled and extruded products: 1.74 million tons (53.5%)
- Castings and die-castings: 1.03 million tons (31.7%)
- Others: 0.48 million tons (14.8%)



By consumption sector:

- Transportation: 1.18 million tons (For automotive use 0.93 million tons)
- Building/const: 0.47 million tons (Door and window sashes 0.32 million tons)
- Metal products: 0.38 million tons (Litho plate, daily goods, etc.)
- Foods market: 0.43 million tons (For beverage cans 0.42 million tons)
- Exports: 0.20 million tons
- Others: 0.59 million tons



(2) Shipments of semi-fabricated aluminium

Shipments of semi-fab. aluminium products in 2009: 1.74million tons

- Flat rolled products: 1.07 million tons (Foil 0.11 million tons)
- Extruded products: 0.67 million tons

6. External trade

(1) Procurement of raw materials

Japan imports almost all of its primary aluminium requirements.

- Domestic production of primary aluminium: 5,027 tons (2009)
- Imports of primary & secondary aluminium: 1.96 million tons (2009)

Trends of Aluminium Ingot Imports by Country (2005~2009) (unit : ton)

No.	Country	2009	2005	2006	2007	2008
1	Australia	415,157	562,100	587,995	606,331	635,454
2	Russia	403,371	392,320	361,762	369,110	419,284
3	Brazil	226,719	224,846	222,086	228,484	218,505
4	New Zealand	221,751	214,732	214,582	221,751	202,251
5	China	162,158	219,145	141,513	49,274	2,655
6	Indonesia	149,893	147,056	160,038	153,273	150,726
7	South Africa	143,387	157,526	160,773	181,813	210,103
8	Canada	79,117	162,079	149,771	160,604	144,040
9	UAE	50,475	103,448	97,307	107,228	118,790
10	Argentina	46,531	40,587	23,986	26,674	48,227
—	Others	59,279	68,279	172,305	134,236	96,560
Total		1,957,833	2,292,118	2,292,118	2,238,778	2,246,595

(2) Exports of semi-fabricated aluminium

Japan exports aluminium sheet and plates including can stock, fin stock, litho plate, etc. mainly to China and South East Asian countries.

Trends of Semi-fabricated Aluminium Exports by Country (2005~2009)

(unit : ton)

No.	Country	2009	2005	2006	2007	2008
1	China	52,859	41,427	41,114	50,416	55,820
2	Thailand	30,029	26,984	29,879	30,251	37,279
3	Malaysia	19,503	21,620	19,600	25,758	23,752
4	Hong Kong	13,117	7,714	9,202	8,700	9,040
5	Taiwan	9,781	15,130	16,203	17,306	17,866
—	Others	55,313	67,720	69,030	79,653	80,252
Total flat rolled products		180,602	180,595	185,028	212,084	224,009
1	Malaysia	6,372	5,108	7,459	8,037	8,862
2	China	4,746	5,583	8,776	7,846	8,844
3	South Korea	2,424	3,391	4,093	2,585	3,108
4	Thailand	2,037	3,190	3,415	4,486	4,554
5	USA	1,231	4,667	4,652	3,315	2,986
—	Others	5,153	6,151	6,823	6,524	5,785
Total extruded products		21,963	28,090	35,218	32,793	34,139
1	China	16,692	19,622	18,708	20,920	18,901
2	Thailand	8,616	11,934	11,863	13,953	13,977
3	Taiwan	3,578	12,528	8,494	7,332	5,712
4	Malaysia	2,009	3,278	2,464	2,783	2,696
5	South Korea	1,966	2,893	3,152	3,237	2,477
—	Others	12,610	15,698	17,254	19,938	19,266
Total foil products		45,471	65,953	61,935	68,163	63,029
Total		248,036	274,638	282,181	313,040	321,177

(3) Imports of semi-fabricated aluminium

Japan imports semi-fabricated aluminium from various countries in Asia, North America, Europe, and elsewhere.

Trends of Semi-fabricated Aluminium Imports by Country (2005~2009)

(unit : ton)

No.	Country	2009	2005	2006	2007	2008
1	South Korea	10,281	26,005	20,552	18,071	15,146
2	USA	5,413	7,887	11,896	11,894	8,526
3	Germany	2,956	5,750	7,010	5,213	5,001
4	China	2,632	1,249	2,394	4,141	4,978
5	France	2,455	6,055	4,487	3,455	3,257
—	Others	8,244	19,615	15,449	11,641	10,025
Total flat rolled products		31,981	66,561	61,788	54,415	46,933
1	USA	2,608	4,666	5,542	6,317	5,542
2	China	2,460	2,166	2,451	3,358	2,451
3	South Korea	1,471	3,423	2,720	2,115	2,720
4	Germany	933	1,530	1,956	1,939	1,956
5	U.K.	490	971	748	873	984
—	Others	1,482	2,152	2,020	2,454	2,165
Total extruded products		9,444	14,908	15,437	17,056	15,818
1	China	12,971	5,289	4,280	7,657	10,528
2	South Korea	3,322	1,872	1,892	2,180	2,923
3	Taiwan	1,342	1,541	1,419	1,476	1,666
4	Indonesia	377	396	372	343	376
5	USA	307	623	454	462	449
—	Others	622	796	1,213	691	722
Total foil		18,941	10,517	9,630	12,809	16,664
Total		60,366	91,986	86,855	84,280	79,415

7. Recent trends on demand for aluminium by market

(1) Transportation

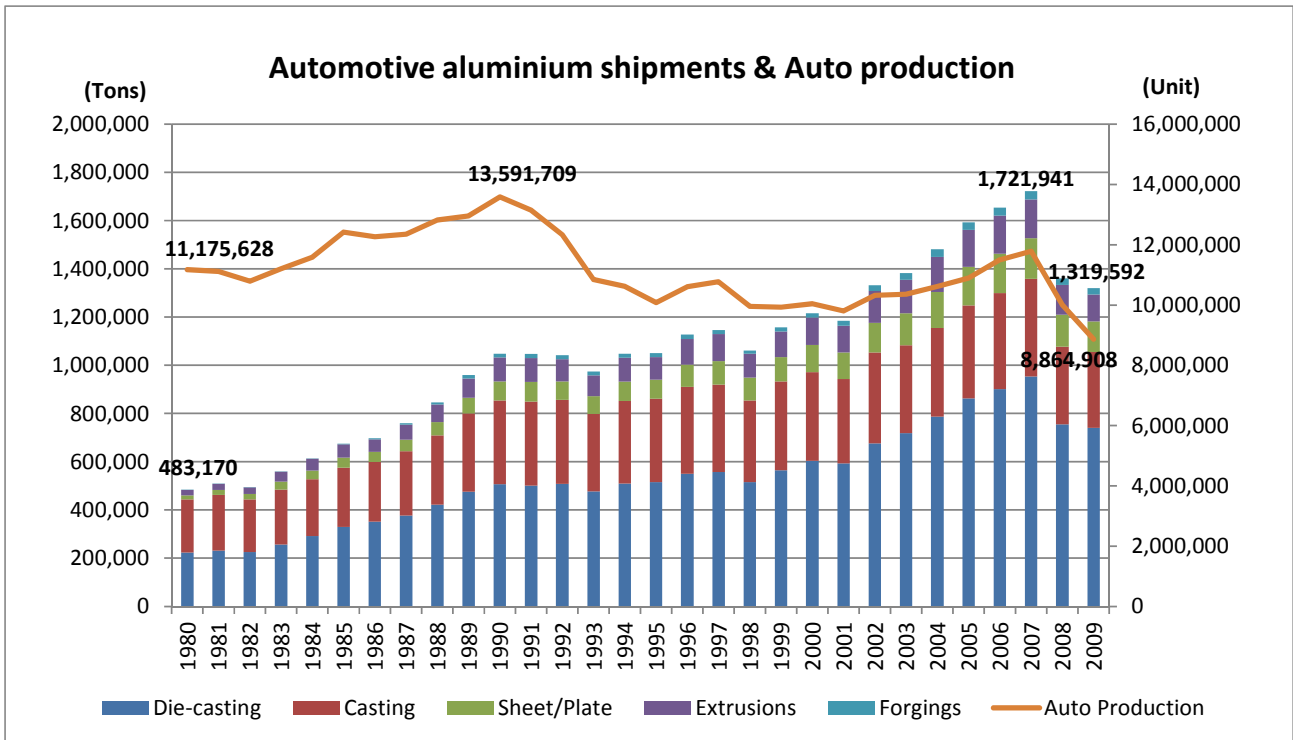
1-1. Automobile

Japanese domestic auto production decreased 2 consecutive years to 8,864,908 units in FY2009.

The reason of the decreasing is not only the global recession, but also due to inactive domestic market demand, especially young generation has a tendency of not interested in automobiles.

After the global financial crisis, Japanese government has implemented incentive policy for purchasing for green vehicles. It contributes to sustain domestic auto sales and aluminium automotive products demand. Now, high fuel economy cars such as hybrid car and small & compact

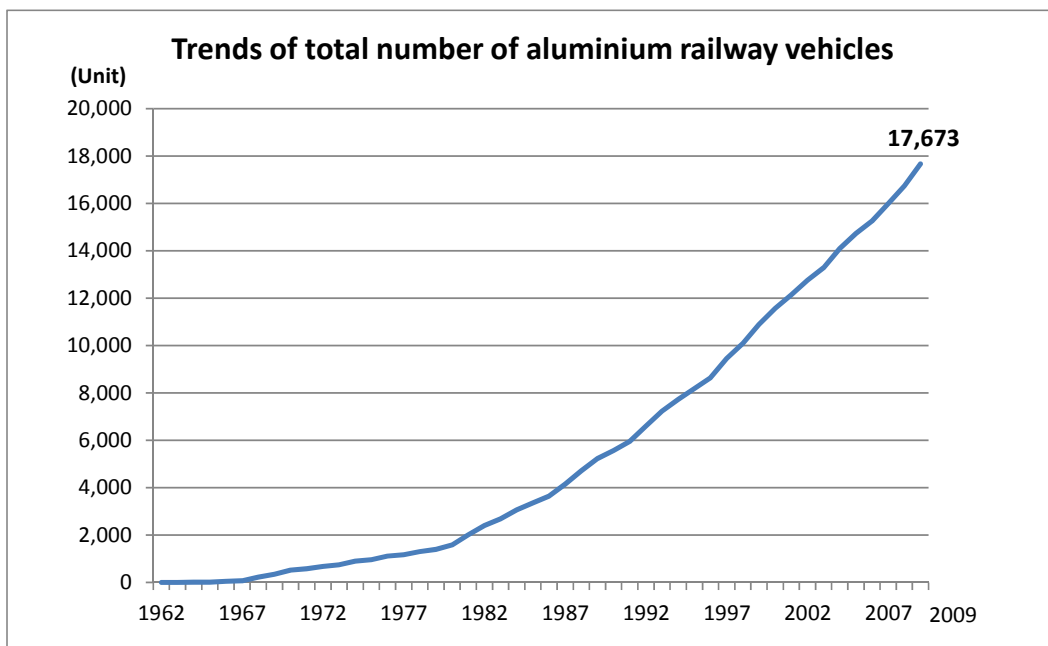
cars dominate top-ranking of domestic auto sales. In automotive industry, aluminium demand will increase for accomplishing light-weighting and high fuel efficiency. And aluminium demand for lithium-ion battery also is expected to increase in electrical vehicles.



1-2. Railway vehicles

In order to reduce the weight of railway vehicles, Shinkansen trains as well as subway cars are now aluminium intensive. As of the end of 2009, the total number of aluminium railway vehicles produced domestically reached 17,673 units.

For railway vehicles, aluminium is used not only for the body frame structures, but also used in applications such as window-frames, seats and bogies. Approximately 100 tons of aluminium is used for one train (consisting of 16 coaches) of the Shinkansen 300 series.



1-3. Fishing boats and passenger ships

With improvement in welding technologies, aluminium vessels are gaining popularity. Fishing boats, patrol boats, passenger vessels using aluminium are now popular and being built in greater numbers.

In the past, many fishing boats were made of FRP (Fiber Reinforced Plastics). However, FRP boats are difficult to dispose of. Thus, highly recyclable aluminium boats are now replacing these FRP boats to a large extent.

1-4. LNG Ships

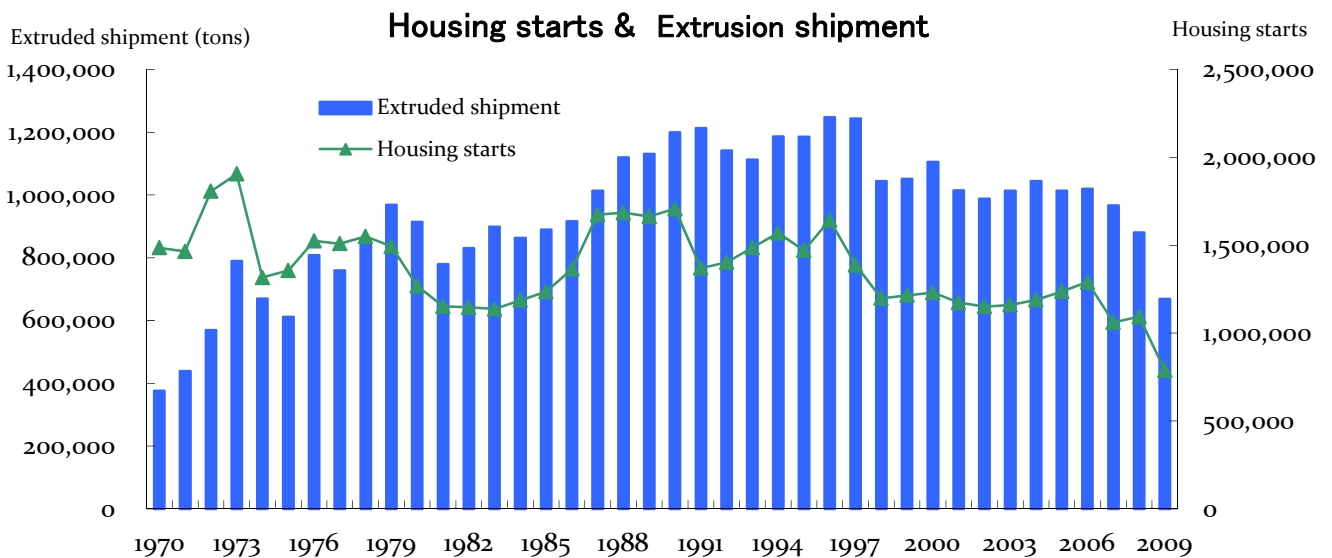
An LNG ship carries liquefied natural gas in specially designed aluminium tanks. As much as 2,500-3,000 tons of aluminium is used for each of this type of vessel.

(2) Construction

Japanese new housing starts has kept decreasing 3 consecutive years to 790,000 units in 2009, this is the lowest level in 42 years. The construction market is expected to recover in 2010, but it is difficult to be back to the past level since Japanese population has already begun to decrease.

In construction market, aluminium extrusion demand will increase in high heat insulation sash, mainly for renovating houses. Japanese government has implemented incentive policy for green construction products at present.

Also, aluminium demand for solar cell is expected to grow. Aluminum is applied in frame and back sheet of solar battery. Japanese government has established incentive policy for setting up solar battery as well. In addition, the government has introduced the purchasing renewable energy program.



(3) Beverage containers

Aluminum can demand in FY2008 was 18.2 billion cans in Japan. Among which 62% is for beer, 28% is for soft drink and 10% is other alcohol drink. Beer demand has decreased in recent years in Japan while the demand for the third-category beer, which is a new kind of alcoholic beverage, has been popular due to its cheap price.

In FY2009, aluminium can recycling rate was 93.4%, which is the highest rate over the last 10 years, of which 62.5% was recycled to aluminum can.

Used aluminium beverage can has higher scrap value compared with other containers, resulting in the lowest recycling costs. This helps reduce costs born by the self-governing bodies for their segregating, collecting, and disposing operations.

The total amount of beverages (beer and soft drinks) produced in Japan amounted to approximately 23.3 million kiloliters in 2009, of which beer and soft drinks accounted for 26% and 74% respectively.

As for soft drink packaging in 2009, PET bottles held the largest share of 64%. Aluminium canned soft drinks accounted for about 7.7% of the market.

