



COPPER INDUSTRY ROADMAP

VISION, GOALS AND TARGETS

▪ **Strategic vision for the industry**

Full integration of copper industry in the Philippines from mining to manufacturing by 2030. Integration will be made possible through the following modes:

- Upstream - Development of major copper mines like Tampakan, Silangan and Far Southeast
- Midstream - Establishment of copper rod casting facility
- Downstream – Development of new copper products that will link with the wire harness industry

It is envisioned that on the upstream, 1-2 large world class copper mines, particularly Tampakan are developed and starts production; at midstream, a revival of investor interest in the production of copper wire rods; and at the downstream, information gathering, research, forums, studies, etc. are being carried out to explore the possibility of venturing into new copper applications.

▪ **Overall specific goals for the industry**

The industry roadmap's overriding goals are as follows:

- Full integration of the copper industry
- Development of the downstream industries
- Enhancement of the copper value chain

In the short-term (2016), the specific milestone would be the establishment of a venue for stakeholders to work together in support of the roadmap aspirations. Within the medium-term (2022), the key goals are further increase in the production of copper concentrates as 1-2 new mines start operations.

Over the long-term (2030), the following specific targets are expected:

- Linkage established between local mining and smelting
- Near self-sufficiency in copper rods
- Development of higher value copper products for both local and the global markets



Quantifiable and measurable targets to achieve the vision for the industry:

Objectives	Targets		
	Short-term (2016)	Medium-term (2022)	Long-term (2030)
Local production of copper rods (MTPY)	0-12,000	18,000	40,000
Increased contribution to the economy (% of GDP)	1.0	1.2	2.0
Export of copper products, excluding cathodes (HSC No. 7407 to 7410) @ 15% pa (Million US\$)	346	800	2,450
Copper concentrate production (MTPY)	700,000	1,100,000	1,500,000

STATE OF THE INDUSTRY

▪ Structure of the industry

Sectoral/subsectoral coverage:

The product segments of the copper industry can best be described by considering the industry's supply chain which is divided into three (3) main areas: 1) the actual production of copper, 2) its transformation and 3) further processing of semi-finished products into components for end-user goods. Copper's final products are essentially intermediate products, entering as inputs in the manufacture of end-user goods like cars, mobile phones, computers, valves, electrical materials, etc.

The following are the copper industry's major products:

- Concentrate (from mineral extraction)
- Cathode and blister (from smelting/refining)
- Rolled products, tubes, rods, and other semi-finished products (from transformation)
- Wires and cables, harnesses, plating and foils (processing semi-finished products)

There are eight (8) products in the Philippines that define the copper industry. These are 1) copper and ore concentrates; 2) unrefined copper/anodes; 3) refined copper and alloys which include cathodes; 4) cast rods, bars and profiles; 5) copper wires; 6) plates, sheets and strips; 7) copper foil; and 8) tube or pipe fittings.

Industry players:

Currently, there are four (4) operating copper mines that are producing concentrates of about 250,000 MPTY. They are 1) Philex (Padcal, Benguet); 2) Carmen (Cebu); 3) Rapu Rapu (Albay) and 4) TVIRD (Canatuan, Zamboanga del Norte). Philex is the largest, most efficient and best run, but its deposit is nearly exhausted, having operated for more than forty (40) years now. Both Carmen and Rapu Rapu are previously closed mines that have recently reopened as favorable copper prices



made them viable to operate. TVIRD is a small mine with copper deposits that are running out now.

Linkages with other industries:

Copper mining, with output that is mostly exported, has relatively low backward and forward linkages with indices at less than 1.0 (Index of Dispersion of 0.8663; Index of Sensitivity of 0.9134). Shown below is the Philippine Copper Industry Backward and Forward Linkages:

PHILIPPINE COPPER INDUSTRY BACKWARD AND FORWARD LINKAGES

<i>Industry/product</i>	<i>Index of Dispersion (Degree of backward linkage)</i>	<i>Index of Sensitivity (Degree of forward linkage)</i>
Copper mining	0.8663	0.9139
Non-ferrous smelting and refining, rolling, drawing and extrusion	1.1435	1.6125
Insulated wires and cables	1.1384	1.4060
Manufacturing	1.2648	2.8780

Index >> 1.0 = strong linkage

▪ **Landscape of the industry**

Supply chain:

Supply chain is divided into three (3) main areas:

- 1) the actual production of copper,
- 2) its transformation and
- 3) further processing of semi-finished products into components for end-user goods.

Cost of production and income

PROFILE OF SELECTED COPPER PRODUCT MANUFACTURERS IN THE PHILIPPINES

Name of company	Production Capacity (MT/Mo.)	Estimated income (PhpM)		
		2009	2010	2011
Philex Wires & Cables Corp. Product line: Wires and cables Plant location: Dasmariñas, Cavite No. of employees: 200	600			
Phelps Dodge Phils. Product line: Wires and cables Plant location: Luisita Industrial Park, Tarlac City No. of employees: 143	450	3,000	4,000	4,700



American Wire and Cable Co., Inc. Product line: Wires and cables Plant location: Bicutan, Parañaque No. of employees: 95		1,980	2,600	3,000
London Industrial Products, Inc. Product line: Wires and cables Plant location: Sta. Maria, Bulacan and Novaliches, Quezon City No. of employees: 80				1,700
Columbia Wire and Cable Corp. Product line: Wires and cables Plant location: Barrio Kangkong, Quezon City No. of employees: 200		1,000	1,200	1,300
Sycwin Wire and Cables Inc. Product line: Wires and cables Plant location: Balintawak, Quezon City No. of employees: 200		668	942	1,000
Associated Wire Corporation of the Philippines Product line: Wires and cables Plant location: A. Rodriguez Ave., Santolan, Pasig City No. of employees: 200	150	364	209	265

▪ **Capacity and Market of the industry**

Sector's production capacities, plant capacity utilization and % share in market

At least 90% of the output of the local wire and cable producers goes to the domestic market, while 10% are exported, mostly to Taiwan and Korea (sold mainly to the companies' subsidiaries in these countries). The domestic market, in turn, is about 60% supplied by local producers and 40% by imports including possibly smuggled substandard products, according to industry sources. Capacity utilization among local producers averaged about 50-60%, indicating that existing capacity is sufficient to meet local demand over the medium-term.

Local markets

The mining industry supplies roughly 250,000 MT of concentrates annually, but all of this go to the foreign market. The reserves from most of the existing copper mines are also reaching the point of exhaustion. Nonetheless, there are a number of potentially good mining projects that could reach the development stage within the next 5-6 years. These investments include the Tampakan Gold-Copper Project in South Cotabato, Silangan Copper Project in Surigao del Norte, and Far Southeast Project in Benguet. These projects could potentially push annual concentrate supply between 700,000 MT and 1.1 million MT within the roadmap period.



Demand

There is no local demand for copper concentrates at this time. All the output of the product are exported. There is potential demand, though, from PASAR, but only when concentrate output increases substantially giving some comfort on the supply reliability to the cathode producer. Locally-produced copper cathodes are also nearly 100% exported. They are sold to semi-fabricators based on London Metal Exchange (LME) copper prices. The Philippines is the 19th largest supplier of cathodes in the world, accounting for 1.5% of the total market.

▪ **Performance of the industry**

Contribution to the economy

The combined contribution to the economy of the three (3) major product groups defining the copper industry – concentrates, cathodes and wires and cables is minimal, accounting for hardly 0.2% of the real gross domestic product. This was a far cry from the late 1970's to the early 80's when copper concentrates alone contributed 1.5-2% of GDP. Note that the figures are expressed at constant prices, i.e., no price escalation, hence measuring quantities not values. Obviously, given the recent surge in the prices of copper, current values would give the highest percentage share for copper. As experienced, copper concentrate has recovered from hard times in mid-2000's, when output was down to as low as 72,000 MT in 2006, reaching 254,000 MT in 2011. But this was barely half the 500,000-600,000 MTPY production realized in the early 1990's. As it stands now, copper cathodes are the largest contributor in the industry, accounting for at least 40% of the contribution as shown below:

ESTIMATED VALUE ADDED OF MAJOR COPPER PRODUCTS: 2009-2010
Billion Pesos at 2000 Prices

Product	Value added (PhpB @ 2000 prices)			% of gross domestic product		
	2009	2010	2011	2009	2010	2011
Copper mining	2.14	2.50	2.67	0.04	0.04	0.05
Copper cathodes (non-ferrous smelting and refining)	5.12	3.74	4.26	0.10	0.07	0.07
Copper wire (insulated wires and cables)	2.65	2.73	2.81	0.05	0.05	0.05
Total	9.91	8.97	9.74	0.19	0.16	0.17
Gross domestic product	5,297.24	5,701.54	5,913.55	100.00	100.00	100.00

Assumptions: Copper cathodes – For 2009, 22% of basic metal industries value added based on input-output accounts; 2010 and 2011 values were established using export volume growth (assuming all output are exported)

Copper wire – For 2009, based on data from the Annual Survey of Philippine Business and Industry of the National Statistics Office (NSO); based on 3% annual growth as provided by industry informants



Trade and investment performance

In 2011, copper product exports exceeded imports on increased sales volume abroad in world prices of copper concentrates and refined copper and alloys (mainly cathodes) as shown below:

PHILIPPINES: VALUE OF EXPORT AND IMPORT OF COPPER PRODUCTS (US\$ Million; exports at FOB prices, imports at CIF prices)

HSC No.	Commodity Description	2000	2005	2009	2010	2011
2603	Copper ore and concentrates					
	Export	28.4	36.9	149.8	268.2	355.9
	Import	237.8	460.4	909.7	1,326.2	757.7
7402	Unrefined copper; anodes					
	Export	-	-	*	-	0.3
	Import	2.6	11.5	3.6	5.3	76.7
7403	Refined copper and alloys					
	Export	239.6	361.7	688.1	807.0	1,130.1
	Import	27.4	35.0	36.2	62.8	100.7
7407	Cast rods, bars and profiles					
	Export	*	0.1	*	*	*
	Import	36.7	72.1	57.7	108.1	122.2
7408	Copper wire					
	Export	3.9	7.1	9.5	17.4	21.1
	Import	33.1	63.0	45.3	88.8	117.0
7409	Plates, sheets and strip					
	Export	0.1	0.6	0.4	0.9	0.3
	Import	53.0	78.4	82.0	69.1	112.2
7410	Copper foil					
	Export	29.6	35.3	86.6	143.3	150.9
	Import	6.9	2.6	17.0	29.8	19.7
7407	Tube or pipe fittings					
	Export	-	*	0.1	0.3	0.4
	Import	1.7	1.4	1.3	2.4	6.7
	Total, copper products					
	Export	301.6	441.7	934.5	1,237.1	1,639.0
	Import	399.2	724.4	1,150.8	1,692.5	1,312.9

* Less than 0.1; - no transaction



PHILIPPINES: VOLUME OF EXPORT AND IMPORT OF COPPER PRODUCTS
(**'000 Metric Tons**)

<i>HSC No.</i>	<i>Commodity Description</i>	<i>2000</i>	<i>2005</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>
2603	Copper ore and concentrates					
	Export	92.3	61.4	164.0	292.3	343.3
	Import	435.7	705.6	698.0	638.6	455.9
7402	Unrefined copper; anodes					
	Export	-	-	0.1	-	0.1
	Import	2.3	1.9	0.6	0.6	8.1
7403	Refined copper and alloys					
	Export	131.6	113.8	151.8	110.9	126.3
	Import	13.7	10.1	7.1	7.9	10.6
7407	Cast rods, bars and profiles					
	Export	*	*1	*	*	*
	Import	18.1	19.4	11.1	18.2	207.
7408	Copper wire					
	Export	2.2	2.2	2.2	3.2	3.7
	Import	14.8	15.9	9.3	11.3	12.6
7409	Plates, sheets and strip					
	Export	*	0.2	0.1	0.2	*
	Import	16.7	17.2	13.5	7.9	10.0
7410	Copper foil					
	Export	4.6	6.2	10.0	12.1	11.1
	Import	1.5	0.4	1.4	2.3	1.7
7407	Tube or pipe fittings					
	Export	-	*	*	0.1	0.1
	Import	0.4	0.4	0.3	0.6	0.9

* Less than 0.1; - no transaction

Employment Generation

The 2009 Annual Survey of the Philippine Business and Industry (ASPBI) reported 3,700 employed in insulated wires and cables, with total compensation accounting for 4% of production cost. PASAR employs about 1,000 with annual salaries and wages representing 20% of total operating expenses.



▪ **Challenges faced by the industry**

Industry costs

Two major cost components hamper the operations of casting facilities in the Philippines: electric power and transport services. Production of copper wire rods, and semi-finished copper products for that matter, is power intensive. It accounts for up to 10% of the cost of production including raw materials. In this aspect, the Philippines loses to Indonesia, the top source of rods, given that the Philippines is reported to have the highest power rate in Asia at US\$0.20/KWH in 2011, or roughly three times higher than Indonesia's US\$0.07/KWH. Indonesia, though, has the advantage of having government subsidy (US\$0.08/KWH) while the Philippine power rate has none. Freight costs in the Philippines are also high.

Technical requirements

One technical issue deals with reliability of power. Casting involves continuous use of electricity. If by any chance power is interrupted by just a few minutes, the whole batch of copper raw materials simply go to waste and the entire process has to be repeated. Another issue is the technology used in the production of wire rods. The country has idle facilities (from the plants that have shut down) that can be re-commissioned, which are all UPCAST.

▪ **Strengths and Opportunities of the Industry**

The strategies for pursuing opportunities using the industry's strengths are as follows:

- Information-sharing (market prospects, production, capabilities, synergies, etc.), consultations and coordination among key players.
- Actively promote investments in wire rod and other downstream copper industries
- Identify and assess the viability of building the domestic capability for producing new, higher value copper applications
- Support the fast-tracked development of a few large, world class mines by overseeing the enforcement of mining laws at the local government levels.

SUPPORT TO INDUSTRY DEVELOPMENT

▪ **General Support**

According to industry sources, the copper industry is essentially market-oriented, with minimal state policy intervention except a few that aims to enhance the business climate. The more significant support would be the standard incentive schemes under the Board of Investments (BOI) and the Philippine Economic Zone Authority (PEZA); establishment and enforcement of quality standards for the industry under the Bureau of Product Standards of the Department of Trade and Industry (DTI); and the participation of the government in the ASEAN industry cooperation initiatives.



Fiscal incentives schemes

The **Board of Investments** (BOI) extends incentives to projects (a) listed in the annual Investment Priorities Plan (IPP); (b) not listed in the IPP but production for export is at least 50% for Filipino-owned companies, 70% for foreign-owned companies; or (c) covered under the industry cluster.

The BOI incentives are in the form of:

- Income tax holiday (ITH) – 100% exemption from corporate income tax for three (3) years if expansion project, four (4) years if non-pioneer project or six (6) years if pioneer project. A one-year extension of ITH may be granted if: (a) average net earnings of the project is at least US\$500,000 for the first three (3) years of operation, (b) capital equipment to labor ratio does not exceed US\$10,000 to US\$1 for the year preceding the extension year applied for, and (c) average cost of indigenous raw materials for the year preceding the ITH extension applied for.
- Tax- and duty-exemption on imported spare parts and/or supplies – This applies only if no domestic manufacturer can adequately meet the needs of the project at reasonable price and of a quality comparable to that of the proposed importation. The project must at export at least 70% of its production.
- Duty-free importation of capital equipment, spare parts and accessories
- Special Investor's Resident Visa (permanent)

The **PEZA** also extends a separate incentives package for manufacturing, assembly or processing activities which export at least 70% of production and locate in a proclaimed special economic zone.

The incentives consist of the following:

- Income tax holiday (ITH) – 100% exemption from corporate income tax for the 1st three (3) years of operation if expansion project, for four (4) years if non-pioneer project, and for six (6) years if pioneer project. A one-year extension of ITH may be granted if: (a) average net earnings of the project is at least US\$500,000 for the first three (3) years of operation, (b) capital equipment to labor ratio does not exceed US\$10,000 to US\$1 for the year preceding the extension year applied for, and (c) average cost of raw materials for the year preceding the ITH extension year applied for.
- A special tax equivalent to 5% tax on gross income – applicable upon the expiration of ITH
- Exemption from the payment of import duties and taxes on all imported raw materials, capital equipment, machinery and spare parts
- Exemption from wharfage dues and export tax, impost or fees
- Zero VAT on local purchases
- Exemption from the real estate tax
- Exemption from expanded withholding tax



- **Specific Industry Programs**

Other than the general support already mentioned, industry sources averred that the domestic copper industry essentially operates under the free market conditions without industry-specific policy support. Hence, their decisions are inherently market-driven, including the sourcing of raw materials either locally or from abroad.

For mining, however, Executive Order No. 79 issued on 09 July 2012 gave clearer direction on the areas open for mining, upheld the primacy of national mining laws over local laws, and renewed the government's commitment to honor existing mining contracts. The EO also provided for the development of a new revenue-sharing scheme through the act of Congress. Existing local regulations, such as the open pit mining ban, though, remain effective, suggesting that it is up to the courts to rule on their validity.



CONTACTS

BOARD OF INVESTMENTS (BOI)

Dir. Guillermo S. Laquindanum - Sectoral Champion

Industry and Investments Building

385 Senator Gil Puyat Avenue,

Makati City, Philippines

Tel. No. :(632) 897-6682 loc. 257

Email: GSLaquindanum@boi.gov.ph

PHILIPPINE ASSOCIATED SMELTING AND REFINING CORP.

Mr. Angelo Veloso - Chairman

37/F Philam Life Tower, Paseo de Roxas, Mkti. City

Tel. No. : (02) 889-6591