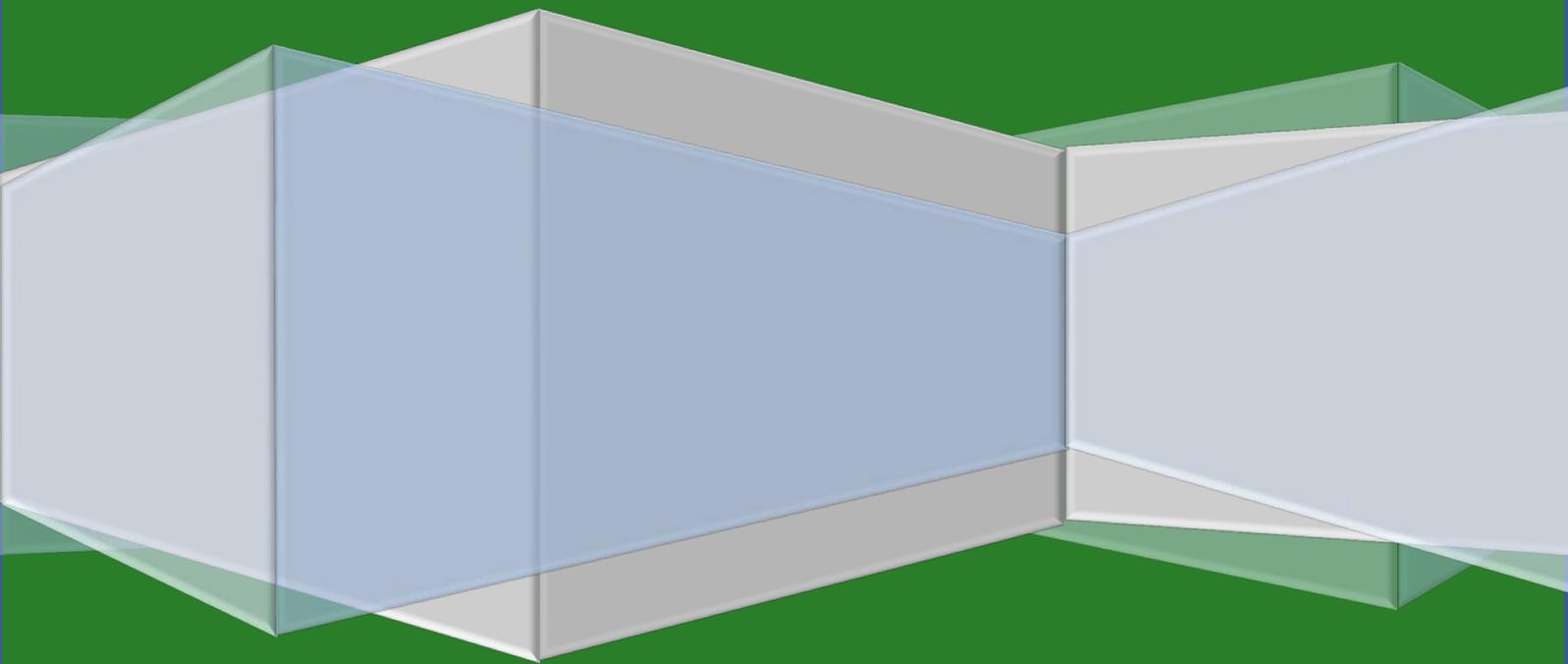


OIC ACCREDITATION CERTIFICATION PROGRAMME FOR OFFICIAL STATISTICS

MINING AND MANUFACTURING STATISTICS



ORGANISATION OF ISLAMIC COOPERATION

STATISTICAL ECONOMIC AND SOCIAL RESEARCH
AND TRAINING CENTRE FOR ISLAMIC COUNTRIES





MINING AND MANUFACTURING STATISTICS

TEXTBOOK

{{SIVARAMAKRISHNA .V. KANTETI}}



ORGANISATION OF ISLAMIC COOPERATION

STATISTICAL ECONOMIC AND SOCIAL RESEARCH
AND TRAINING CENTRE FOR ISLAMIC COUNTRIES

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ACRONYMS

AfDB	...	African Development Bank
ASB	...	Annual Statistical Bulletin
CPC ver 2.0		Central Product Classification version 2.0
GCC		Gulf Cooperation Council
EPI		Export Price Index
GDP		Gross Domestic Product
HSE		Health and Safety Executive
IBM		Indian Bureau of Mines
IIP		Index of Industrial Production
ILO		International Labour Organization
IMF		International Monetary Fund
IPI		Import Price Index
IRIS	2008	International recommendations for Industrial Statistics 2008
ISCO		International standard Classification of Occupations
ISIC	rev4	International Standard industrial classification of all Economic Activities Rev 4
MENA		Middle East and North Africa
MSME		Micro, Small and Medium enterprises
OECD		Organization for Economic Cooperation and Development
OIC		Organization of Islamic Cooperation
OPEC		Organization of the Petroleum Exporting Countries
OSH		Occupational Safety and Health Producers price Index
PPI		Producers price index
SESRIC		Statistical Economic and Social Research & Training Centre for Islamic Countries
UNIDO		United Nations Industrial Development Organization

UNSD	United Nations Statistical Division
UNSO	United Nations Statistical Office
USGS	U.S Geological Survey
WB	World Bank
WESO	World Employment and Social Outlook (Data base)
WDI	World Development Indicators
WHO	World Health Organization

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Further, most of the information regarding mining and manufacturing sectors is taken and included in this text book is from the websites and data bases/ published papers of the following government agencies and organizations. The author expresses his special thanks to these organisations.

- i. IBM 2011, Mineral Royalties, Jan 2011 by Indian Bureau of Mines, Ministry of Mines, India.
- ii. Mining in India , Wikipedia
- iii. UN publication (2008): International Standard Industrial Classification of all Economic Activities, Rev 4
- iv. USGS 2010: Minerals Year book, The Middle East
- v. AfDB 2012, Africa Economic Brief, volume 3, issue 6, June 2012
- vi. Alkhabeer Capital: GCC Budget Analysis 2014,
- vii. SESRIC: BASEIND data base

- viii. US Bureau of Labor Statistics , industries at a glance, Mining sector
- ix. US Bureau of Labor Statistics , industries at a glance, Manufacturing sector
- x. US Census Bureau Guide to data sources for Manufacturing ,
- xi. Swaraj Kumar Nath, Industrial statistics of India: status and issues, paper submitted to expert group meeting on industrial statistics Sept 2005, Link: ESA/STAT/AC 105/7.
- xii. Seiji Machida 2009: System for collection and analysis of occupational accidents data, African News letter on occupation health and safety, vol 19, No1, Apr 2009.
- xiii. Pius W. Makhonge Kenya (2009) : Chemical Safety and accident prevention, African News letter on occupation health and safety, vol 19, No1, Apr 2009.
- xiv. Dolf Kofi Badu Sutherland , Ghana 2009: Occupational injuries in a gold mining company in Ghana, African Newsletter on occupation health and safety, vol 19, No1, Apr 2009.
- xv. A paper by LA Abongomera, Uganda 2009: The impact of globalization on occupational health services, a case of developing countries, African Newsletter on Occupation health and safety, vol 19, Nov1, Apr 2009.
- xvi. HSE2014/15: Health and safety in manufacturing in Great Britain,
- xvii. OECD2008: Glossary of statistical terms 2008

While appreciating all the help received from the people and organizations listed above, I still feel responsible for any errors remaining in the text book. Kindly write to me back if you find any errors like misspelled words, numerical errors, incorrect statements, comprehension errors, typesetting problems or any other qualifying errors.

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TEMPLATE

UNIT 1

Minerals, Mining industry , structure and its contribution to the economy

The Unit 1 deals with what Mining sector is, its structure and importance in the economy, various types of royalties charged on minerals, and specific issues of mining industry. on

1.1. Minerals , Classification , Structure of the Mining Sector and Establishments

Learning Objectives

1. To understand the concept of minor and major minerals
2. To learn about the metallic and non-metallic minerals
3. To understand about the types of extraction of minerals and agencies involved
4. To learn about the mining economic activities and the industry structure

Minerals are valuable, nonrenewable natural resources. They are found either on the surface of the land, or in the sub-surface of the land or found in offshore area. Minerals and other things of value underlying in the ocean within the territorial waters or continental shelf or in the exclusive economic zone of the country are known as offshore minerals¹.

The minerals are broadly classified as major minerals and minor minerals. The major minerals are further grouped into four different groups¹ mostly based on the perceived value (i) precious metals and stones (like gold, silver, diamond, ruby, sapphire and emerald etc.) (ii) semi-precious metals (like agate, gem , garnet and corundum, copper, zinc, asbestos, mica etc.) (iii) Medium value minerals (like chromite, manganese, sillimanite, magnesite, perlite, diaspore, rock phosphate etc.) and (iv) low value minerals (other than the above specified minerals at (i) to (iii)).

Minor minerals are mostly procured from local areas and used in construction and for other local purposes¹. Examples of minor minerals are: ordinarily clay, ordinary sand, fuller's earth, brick earth, building stones, gravel, slate and shale used for building purposes, marble & stone used for utensils, sand stone and quartzite used for building and for road metaling purposes.

In some countries minerals are categorized as metallic ones (copper, bauxite, gold, Iron ore, lead, manganese, zinc etc.) and non-metallic minerals (like diamond, gypsum, limestone, phosphonate, etc.)². The metallic ones comprise of both ferrous and nonferrous minerals while the non-metallic minerals comprise of fuel minerals (like coal, lignite, petroleum and natural gas, etc.), and other precious stones etc.

Different methods are used for extraction of minerals. Open cast mining and underground mining operations are carried out for extracting solid state minerals whereas drilling and pumping operations are undertaken for extracting liquid and

gaseous fuels. Sea bed and well mining operations are carried out in case of offshore minerals².

In some countries like India, all operations related to minerals like surveying, prospecting and exploration of minerals are undertaken under the administrative control of one Ministry (Ministry of mines) and the ministry is supposed to govern, regulate the extraction of minerals. However, petroleum, natural gas, and atomic minerals are governed by other specified agencies. The practice varies from country to country¹.

As per the International Standard Industrial Classification of all Economic Activities Rev 4, (ISIC Rev 4), the mining and quarrying sector is sub sectored into five (5) divisions². They are generally regrouped into the following three subsectors and considered for studying the structure and employment of the industry⁸.

1. Mining and Quarrying of fossil fuels (ISIC divisions 05 and 06)
 - a) Coal and lignite
 - b) Crude petroleum and gas
2. Mining and Quarrying of metal ores and other minerals (ISIC divisions 07 and 08)
 - a) Mining of metal ores (Iron, uranium and thorium and other nonferrous ores)
 - b) Quarrying of stone, sand, clay and other products (like peat, salt, chemical minerals, fertilizers, asbestos etc.),
3. Support activities of Mining sector (ISIC division 09)

Establishments in Mining sector (except oil and gas) engage in mining, mine site development and beneficiating the minerals⁸. These establishments specifically engage in ore extraction, quarrying and beneficiating operations (like crushing, screening, washing, sizing, concentrating and floatation) usually done at the mine site.

Establishments engaged in oil and gas extraction operate and develop oil and gas fields. These establishments are engaged in activities like drilling, completing and equipping the wells; operating separators, emulsion breakers, desilting equipment, and all other activities which are required to prepare the oil and gas to bring it up to the point of shipment.

The establishments engaged in support activities of mining sector engage in providing support services on contract or fee basis. These establishments engage in operations like the exploration services, drilling, test drilling or re-drilling for oil wells, metallic and non-metallic minerals, building oil and gas well foundations, cleaning bailing and swabbing oil and gas wells, draining and pumping mines, removal services at mine sites etc⁸.

1.2 Availability and highlights on the production of minerals in OIC countries

Learning Objectives

1. To learn about the availability of minerals in OIC countries
2. To learn about the production of minerals in some OIC countries

Table 1 gives the details on the availability of minerals in the year 2010 for thirteen Middle East OIC Member Countries⁴.

Table 1 and Table 2 are to be pasted here.

In Table 2, the production details of some important minerals are given for 9 Middle East OIC Member Countries for the year 2010. Highlights are given below:

- a) Iran was the only Middle East country which produces Uranium metal (50 Metric Tons) and Molybdenum metal (3900 Thousand Metric Tons) in the Year 2010.
- b) Turkey was the only country in the region which produces Nickel in the year 2010 (400 metric Tons)
- c) Turkey and Iran are countries in the Middle East region that produced coal.
- d) Saudi Arabia was leading country in petroleum production in the Middle East countries in volume terms followed by Iran, UAE and Kuwait.
- e) Iran was the leading producer of natural gas in volume terms followed by Qatar and Saudi Arabia.
- f) Iran, Saudi Arabia and Turkey were the three producers to produce Zinc metal in the Middle East countries.

1.3 Royalties, Dead rents, types of royalties, royalty rates

Learning Objectives

1. To understand about the royalties on the minerals, type of royalties
2. To learn about Royalty rates prevailing in the OIC countries
3. To know about the mineral rents and its contribution
4. To learn about the royalties on offshore minerals and dead rents on mining leases

Royalty constitutes an important aspect of the mining industry and generates revenues to the government. It is a charge collected by the owner of a mineral resource in consideration of the exploitation of it by the lessee. The owner of the mineral resources is known as the mineral rights holder or lessor and the person/ establishment / enterprise who extracts the mineral is known as a lessee/ mineral producer for the specified mineral¹. Royalty is calculated on the quantity of minerals extracted or removed. Royalty rates are different for different minerals and vary grade to grade of a mineral and also vary region to region and country to country.

There are broadly three main types of royalties prevailed in the mining industry. The first one is unit based or production based royalty. In this type, royalty is charged based on quantity of production or tonnage of the mineral produced. This means charging a fixed percentage of production and the royalty value is not dependent on the price of the mineral.

The second type is ad-valorem based royalty or sales based royalty. In this type, royalty is payable as per a specified mandate agreed upon by both lessee and lessor and is dependent on the market value of mineral produced. The ad-valorem based

royalty is the commonly used royalty type in African OIC member countries. The third category is royalty charged as a share of profit. This is assessed on the profit of the operations⁵.

In some countries like India, for some offshore minerals, fixed rents are charged (for the land leased in by the lessee), payable for each year. For some offshore minerals, the lessee pays royalty to the lessor in respect of any mineral removed from the area covered under production lease at the rate specified by lessor and agreed by the lessee. For some other minerals, lessee needs to pay either the fixed rent or royalty rate whichever is higher.

Dead rent is also charged in India, on mining leases. Dead rent is a charge collected for each of the mining lease when the resources are kept idle. Lessees sometimes keep the resources idle for creating scarcity or preventing competition etc¹. The rate of the dead rent varies from one group to another group of minerals. For this purpose, the minerals are grouped into 4 groups namely (i) precious metals and stones, (ii) high value minerals, (iii) medium value minerals and (iv) low value minerals.

The African Development Bank has published royalty rates charged by some countries in its Economic Brief (volume 3, issue 6 of June 2012)⁵. The Indian Bureau of Mines (IBM), had also published royalty rates for some of the mineral producing OIC member countries in its report¹.

Table 3 on royalties is to be pasted here

Table 3 indicates the royalty rates for some of the OIC Member Countries for hydro carbons, precious metallic minerals and base metals taken from these sources⁵. It was mentioned that the average royalty rate is approximately 3.5% and the modal rate is 3% in African countries. The highest royalty rates were on precious mineral stones such as diamonds and gems (5 to 5.5%) followed by precious metals such as gold, silver and platinum (4%) and for the base metals like iron etc. the royalty rate is 3%.

1.4 Importance of mining industry and specific issues related to the industry

Learning Objectives

1. Understand the role of the mineral revenues in the total revenues
2. To learn about the role of the Mining industry in the economy
3. To know about the mineral rents and its contribution
4. To learn specific issues related to the Mining industry

Mining industry is an important source of export revenues besides meeting the domestic needs of the country. Further, it is also a major source of employment and provides job opportunities both for skilled and unskilled labor. Minerals are mostly owned by the governments. In some of the Middle East countries, the mineral income/oil income is the main source of the revenues for the government to meet the

expenditure on its various social sector projects in health, education, infrastructure & housing sectors.

Table 4 is to be pasted here.

Table 4 reflects on the share of the hydrocarbons revenue in the government revenues for four OIC Member countries for the year 2013. These four countries are leading economies of the GCC⁶. The share of the hydrocarbons revenue is highest in Kuwait (92.4%) and is closely followed by the Saudi Arabia with 89.5% share. Kuwait is also in top position having the highest share of hydrocarbon revenues (64%) in the nominal GDP. However, Qatar (with 54%) follows second position in this indicator. Both Kuwait and Saudi Arabia are mostly dependent on oil revenues for their budget expenditure.

The ranking of the OIC member countries based on the importance of mining sector in the overall economy could also be viewed in table 5. For this purpose, data collected and published by the SESRIC on the percent shares of Industry (Mining, Manufacturing and Utilities) in Gross Domestic Product (GDP) and Manufacturing sector for the year 2014 are used to arrive at the share of Mining sector⁷. Here the Mining sector includes the Utilities also but reflect the Mining sector as a proxy. Among the OIC member countries, Kuwait has got the largest share of the Mining sector in its GDP and followed by Libya with 51% and Qatar with 50% respectively. These results are also consistent with those given in table 5. There are 14 OIC member countries having the share of Mining sector more than 25% in their respective GDPs. The average share of the Mining sector OIC countries works out to be around 20.63% and thus in 17 OIC member countries, the mining share is more than the OIC average (20.63%). However, the share of Mining sector in Afghanistan, Somalia and Tajikistan is less than 1% in their respective economies.

Table 5 needs to be pasted here

The importance of the mining sector in the total economy with a different prospective could be seen in table 6. For this purpose, data collected by the SESRIC on total natural resource rents from different sources for the year 2009 was utilized⁷. The details on the total of natural resource rents as percentage of GDP for the year 2009 for the top five (5) and bottom five (5) OIC member countries are given in the table. The 'natural resource rents' is the sum of oil rents, natural gas rents, coal rents, mineral rents and forest rents. It means the total revenue that can be generated from the extraction of the natural resources less the cost of extracting the resource (including a normal return on the investment to the extractive enterprise). In the five (5) countries namely Iraq, Brunei, Kuwait, Libya, Saudi Arabia, the natural resource rents accounted for more than 45% of the their gross domestic product in the year 2009. The share of the natural resource rents in GDP is less than 0.75% in five (5) countries namely Kyrgyzstan, Djibouti, Turkey, Tajikistan and Lebanon. It is mentioned that the share of the natural resources rents in the GDP for all OIC member countries taken together was valued about 17.9% in 2009 whereas its share in the world GDP is only 3.7%. Moreover, it is stated that in 20 member countries, the natural resource rent is higher than the OIC's average (17.9%).

Table6 needs to be pasted here.

The following Issues in the mining industry need special attention of the industry and Government.

- (i) Proper assessment of natural resources (unexplored areas, distribution of minerals in the explored / known areas),
- (ii) recycle and use of scrap iron and other materials in the mining sites,
- (iii) Mining accidents occurred (due to human intervention and by natural phenomenon (explosions and flooding etc.),
- (iv) large scale displacement of human population,
- (v) dangers to animal habitats,
- (vi) deforestation and
- (vi) resistance by the local population due to loss of their traditional livelihood.

Off late, issues like (a) human rights violation, (b) environmental degradation (rise in pollution, temperature and other weather issues) have become important mining issues which require government's immediate intervention².

Mineral sector being an important means of revenue realization for the government and a vital part of fiscal regime of a country, each of the country need to fully explore the mineral wealth within its geographical territory, mountain ranges, marine territory, specific Economic Zones. At the same time, the governments should give adequate attention on the issues governing the mining industry².

UNIT 2

Manufacturing industry, its structure, and its role in contribution to the economy

2.1 Manufacture, and different type of units in manufacturing

Learning Objectives

1. To understand the manufacture and transformation of substances
2. To know about different types of manufacture units

The word 'Manufacture' constitutes all activities relating to the transformation of materials / substances or components into new products. The transformation may be a physical, or a chemical one. The raw materials are generally procured from the Agriculture or Mining sectors or from another manufacturing units⁹. The output of manufacturing units is a new final product. The output may be (a) finished product which could be of ready to use in the sense of (i) final consumption or (ii) for utilization as a capital good for further production process; or (b) a semi-finished product that could be used as an input in another manufacturing unit.

Manufacture covers both physical production of goods and industrial services (repair and installation of machinery and equipment). Materials transformed by hand like making traditional handicraft items, household utensils etc. or products prepared within the workers' home like biris (smoking items like cigarettes), custom tailoring etc. are also treated as manufacture⁹. However, the products produced for sole purpose of own consumption are not treated as manufacture.

In India, the manufacturing activity is divided into factory and non-factory sectors based on the status of registration of the units with an act and on size of employment. The factory sector covers all units registered with factory act 1948 and the non-factory sector covers all other manufacturing units¹¹. The factory sector is also known as registered sector or organized sector. The non-factory sector is known as unregistered or un- organized sector. Further, the manufacturing units are divided into large and small scale units on the basis of capital employed in plant and machinery. The units having the capital employed in plant and machinery below a prescribed limit are known as small scale units and the remaining are known as large scale or medium scale units¹¹.

2.1.4 In some of the Middle East countries, the following employment criteria is followed to categorize the units as small or large one.

Micro unit: employing 1 to 9 persons

Small unit: employing 10 to 50 persons

Medium unit: employing 51 to 250 persons

Large scale unit: employing more than 250 persons. A slight change in the employment limit is also noticed in other countries.

2.2 Structure of the Manufacturing sector and establishments engaged in

Learning Objectives

1. To understand the economic activities involved in manufacture
2. To know about structure and subsectors of the manufacturing industry
3. To understand the contribution of the Manufacture sector in the economy

As per the ISIC Rev 4, the manufacture sector is sub grouped into 24 divisions². They are regrouped into following six activity subsectors and are generally considered for studying the structure and employment of the industry^{16, 9}.

1. Manufacture of food and beverages (ISIC 10,11 divisions) covering manufacture of
 - a. food products
 - b. beverages
2. Manufacture of nonmetallic products (ISIC 16,17,22,23, 31 divisions) covering manufacture of
 - a) Wood and wood products
 - b) Paper and paper products
 - c) Rubber and plastic products
 - d) Other non-metallic products
 - e) furniture
3. Manufacture of coke, chemicals and pharmaceutical products (ISIC 19,20,21 divisions) covering manufacture of
 - a) Coke and refined petroleum products
 - b) Chemicals and chemical products
 - c) Pharmaceutical products and preparations
4. Manufacturer of metallic products (ISIC divisions 24,25) covering the manufacture of
 - a) Basic metals
 - b) Fabricated metal products
5. Manufacture of transport vehicles and transporting equipment/ products (ISIC divisions 29 and 30) covering manufacture of
 - a) Motor vehicles etc
 - b) Other transport equipment
6. Other Manufacturing products (ISIC divisions 12, 13, 14, 15, 18, 26, 27, 28, 32, and 33) covering manufacture of
 - a) Tobacco products
 - b) Textiles
 - c) wearing apparels
 - d) leather products
 - e) Printing and reproduction of recorded media
 - f) Computer , electronic products
 - g) Electrical equipment

- h) Machinery and other equipment n.e.c
- i) Other manufacturing
- j) Repair and installation of machinery and equipment

In some countries, the industry structure is analyzed with slight modification of the above subsectors. Manufacture of nonmetallic products is sometimes clubbed with the other Manufacturing subsector. In some other countries, the division 'repair and installation of machinery and equipment' is taken out of other manufacturing and shown as separate subsector while disseminating the data⁹.

Establishments engaged in manufacturing of new and final products by transforming the materials and substances are treated as manufacturing establishments. They are often known as plants, factories or mills. They generally operate at fixed locations. They use power driven machines and material handling equipment. Manufacturing establishments may process materials on their own or outsource the processing operation to other establishments¹⁰.

2.3 Contribution of Manufacture sector in the Economy

Learning Objectives

- 1.To understand the importance of the manufacturing industry in the economy

Manufacturing sector plays a vital role in contribution to the economy and is a major employer accounting a significant share of total workforce. It creates demand for the products of primary industries (Agriculture and Mining sectors). Construction sector is mostly dependent on the products of manufacturing sector. Many service industries are based on the goods produced by the manufacturing sector or in turn support the manufacturing sector with their services. Manufacturing statistics are a key input into the national accounts. The importance of the manufacturing sector in the total economy of the top ten OIC member countries is given in table 7 for the year 2014.

Table 7 is to be pasted here.

The manufacturing share in GDP is highest for the Turkmenistan (38.01%) whereas it is the least in Sierra Leone at 1.61% of GDP in the year 2014. In four countries namely Turkmenistan, Malaysia, Uzbekistan, and Indonesia the share of the manufacture sector is more than 20% of the GDP. The average share of Manufacture to the GDP in all OIC countries taken together is 13.68%. Thus, there are 21 member countries whose share of manufacturing to GDP is above the OIC average share. However, the share of the manufacturing sector is less than 5% in the seven countries namely Maldives, Syria, Algeria, Libya, Iraq, Somalia, Djibouti and Sierra Leone⁷.

TEMPLATE

UNIT 3

Contribution of both Mining and Manufacturing sectors in Employment and Exports and Classification issues

3.1 Contributions of both the sectors mining and Manufacturing in Employment, and Exports

Learning Objectives

1. To understand the role of Mining and Manufacturing in employment
2. To know the significant role of the sectors in Exports

This unit deals with the Mining and Manufacturing sectors together and their contribution together in generating employment and their share in total exports. Classification issues that arise in classifying the establishments to the appropriate economic activity is also discussed.

As the updated data for mining and manufacture sectors separately are not available Information on Employment in the industry sector (Mining, Manufacturing, Utilities and Construction sectors together) is given in the table 8 for 15 member countries. The figures relate to different years. The information given could be viewed as proxy for employment in mining and manufacturing sectors together⁷. Qatar witnessed the highest share of employment (51.9%) in the industry out of the total employment in the economy. It is followed by Oman with its share of 36.9% and Bahrain with share of 35.3%. In seven countries, the share of employment in the industry sector is more than 30%.

Table 8 is to be pasted here

Table 9 depicts the importance of fuel exports and manufacture exports in the total merchandise exports of the OIC countries. Top ten OIC member countries dominating in fuel exports and another set of the top ten countries having highest percentage of Manufacture exports are listed in the table. The export figures of each country are given as percentage of total merchandise exports. Updated information for the recent year for all countries is not available⁷. However, the information given could be viewed as proxy for importance of exports in Mining and Manufacturing sectors. The share of the fuel exports in all the given ten countries is above 83%. Iraq is at top position with its share of fuel exports at 99.69% and followed by Algeria with 98.34% and Libya with 96.84% shares. Bangladesh witnessed the highest position with 99.69% share in manufacture exports and followed by Turkey with 76.27% and Pakistan with 73.64%

shares. In all the given ten countries, the share of the manufacture exports in total merchandise exports is above 61%.

Table 9 needs to be pasted here

3.2 Procedure for classification of establishments and special situations

Learning Objectives

- 1) To understand how an establishment is classified to an economic activity of ISIC rev 4.
- 2) To learn about some special situations

While classifying the establishments into one (Mining or Manufacturing) Section or into other of ISIC sections, care should be taken in deciding the economic activity undertaken and classifying the establishment to the respective sector. Special care should be taken while preparing the list frame of the units / business register or while conducting the sample surveys.

If more than one activity is carried out by an establishment and separate information is available for each activity, then each of such activity is to be treated as separate establishment and the establishment is thus classified into that sector of activity. If separate information is not available, then the major activity of the establishment is to be decided based on one of the criteria (i) turnover, (ii) value added, (iii) employment during the reference year and thereafter the establishment is classified as per the major economic activity². The following examples illustrate clearly the concept.

Take a simple case of an establishment engaged in two activities, one is manufacturing and the other one is trading. The GVA share of manufacturing is 65 and the GVA share of trading is 35. The establishment is classified as manufacturing establishment as its GVA share is higher. A complex example taken from the UNSD publication, series M on economic activities is given below.

A trading establishment is engaged in 8 economic activities as depicted in the following table.

Section	Division	group	class	Description of the class	Share of GVA in %
G	46	465	4651	Wholesale sale of computers	10
G	47	474	4741	Retail sale of computers in specialized stores	8
G	47	474	4742	Retails sale of audio and video equipment in specialized stores	15

G	47	475	4759	Retail sale of electrical household items in specialized stores	4
G	47	476	4761	Retail sale of books in specialized stores	3
G	47	476	4762	Retail sale of music and video tapes in specialized stores	12
G	47	479	4791	Retail sale via mail orders	35
N	77	772	7722	Renting of video tapes	13

Total percentage sales is tallied to 100. It can be seen that the trading establishment is also engaged in Section N (Administration and support services). In the top down approach, the major economic activity is to be decided at section level first, then at division level within the major section, and there after within the group level within the division etc. Here in the example at group level, one more distinction is made (retail trade having specialized stores and no specialized stores). The major economic activity at group level is also to be decided based on having specialized stores or not. Finally the major class with in the major group is to be selected. The steps are as given below.

Between the sections G and N

The share of the GVA of the G section is 87

The share of GVA of section N is 13, so Section G is the major activity section

Within the section G,

The share of the GVA of division 46 is 10 and that of division 47 is 77. So the major economic activity division is 47 (retail trade)

within the Division 47

The share of the GVA of group 474 is 23, of 475 is 4, of 476 is 15 and of 479 is 35. But the three groups namely 474, 475 and 476 are with specialized stores. Only one group 479 is a non-specialized one. So GVA share of the groups 474, 475 and 476 together is 42 and that of 479 is only 35. The major economic activity is of specialized stores (among 474 to 477 groups). Within the groups 474 to 477, the major economic activity group is 474 with GVA share of 23, and the major economic activity class within the 474 group is 4742 class with 15 GVA share. Thus the establishment is finally to be classified as retail trading establishment dealing with retail sale in audio and video equipment in specialized stores².

As a general rule, the activity in manufacture involves transformation of materials into new product. The output is a new and a final product. Establishments engaged in manufacturing of hard coal briquettes or lignite fuel briquettes and producing solid fuels through coke ovens are manufacturing establishments and not mining establishments. Establishments engaged in refining of petroleum products, recovery of liquefied petroleum gases from refineries, manufacture of industrial gases, roasting of iron pyrites, production of aluminum oxide, operation of blast furnaces, enrichment of uranium and thorium ores, smelting and refining of uranium are all manufacturing establishments and not mining establishments². Here transformation of substances is involved and new product is produced. However, cutting, shaping and finishing of stone within quarries and done in conjunction of mining and quarrying activities is a mining activity and not a manufacturing one.

If a manufacturing establishment, does engage itself in another activity incidental to manufacturing, like selling any material in the same condition as purchased, it is treated as engaged in manufacture and not considered as trading establishment. Examples are: A bakery unit manufacturing bakery items and also sells the bakery items at the same premises, or the bakery unit also selling cold drinks. A manufacturing unit having a restaurant in its premises¹⁰.

Similarly, if a trading establishment undertakes transformation activities which are incidental to trading are not to be taken as manufacturing unit. Examples are: Selling eyeglasses after suitable grinding and fitting the glasses to the frame as per the specification of the customer, Textile Shop keeper undertaking block printing or taking up embroidery work on the clothes supplied by the customer; or shop owners writing name plates etc. or engraving on metals on the customer's orders is not to be treated as manufacturing units¹⁰. Here the principal activity is trading and little transformation is done as incidental to trading (to suit to the needs of the customer).

3.3 Special cases in Manufacturing

Learning Objectives

1). To understand special situations of manufacturing establishments.

The following activities even though involve in transformation processes, are not to be classified as manufacturing²

Activities like (i) breaking bulk amount and redistribution in smaller lots, or packaging and repackaging or bottling of products such as chemicals, liquors

(ii) Sorting of scrap (iii) Mixing of paints to customer' order (iv) Cutting of metals to customers' order, (v) Producing a modified version of same product are classified to Section G, (of Trade sector)

(vi) Activities like logging, beneficiating of agricultural products are classified in section A (of Agriculture Sector)

(vii) Construction of structures at the construction site or fabricating operations performed at the site of construction are classified in Section F (of Construction Sector)

(viii) Activities like beneficiating of ores, and other minerals at mining site is classified in section B (of mining sector)

The following cases need special attention².

The processing of waste into secondary raw materials is classified in Section E (Water supply, sewerage, waste management etc.) even though there is physical or chemical transformation. Because the primary purpose is to treat the waste or processing of waste only. The output is not a final product here but a secondary material. However, production of silver from silver film waste is treated as manufacturing process. Bottling of natural spring and mineral waters at springs and wells is treated as manufacturing activity as it involves processing of extracted materials².

The repair, installation of machinery and equipment when carried out as a specialized activity, it is classified as manufacturing. However, the repair of computers and personal and household goods is classified in ISIC section S (of other service activities).

UNIT 4

Data collection and data processing

4.1 Requirement of specific data , collection and quality dimensions

Learning Objectives

1. To understand the requirement of the data on the sectors
2. To understand about the standard practices to be followed while collecting the data
3. To learn about the data quality dimensions

Sound data base on various items for both the mining and manufacturing sectors are essential for effective policy formulation at the industry and national level. Further, comprehensive data is required for controlling the flow of both private and public investments into these two sectors. Introduction of state – of – the art technology in exploration and mining operations , planning for and use of sophisticated capital equipment and robot based technologies to produce highly scientific precision products at entrepreneur level needs reliable data base.

Collection of data

The data is generally collected either from establishments engaged in or from the employers or from administrative agencies through regular surveys/ periodical returns. For this purpose, mine/ plant owners / managers of establishments extracting the mines and manufacturing the products, traders, exporters, end users of the products both for Mining and manufacturing sectors need to be registered with an authorized agency.

Data needs to be collected in prescribed formats as per the time schedule and at periodic intervals (annual, quarterly and monthly). While collecting and compiling the data on these two sectors, international recommendations for industrial statistics as given in IRIS 2008 need to be followed to enable the international comparability of data on the economic activities. Standard international activity classification (ISIC Rev 4) as suggested by the UNSD needs to be followed while classifying the establishments into different sectors. This reduces the bias (under estimation or over estimation) in estimation of sector wise indicators. Product classification as suggested in the CPC ver 2.0 or ver 2.1 needs to be followed to have international comparability of products (goods and Products) on production, trade and consumption. Occupational classification as suggested by ILO in the ISCO-08 needs to be followed to have international comparability of occupational incomes, working hours, rates related accidents, fatal and non - fatal injuries.

The five dimensions of the quality namely (i) assurances of integrity, (ii) methodological soundness, (iii) accuracy and reliability, (iv) serviceability, and (v) accessibility, as

suggested by the IMF through its data quality frame work, need to be followed at all stages of collection, processing and dissemination of data¹⁸.

4.2 Important data items and Occupational categories of employment

Learning Objectives

1. To understand about the important data items on both the sectors
2. To know about the specific data items on the mining sector
3. Occupational categories of the employment commonly found in the sectors

Important data items for both sectors (Mining and Manufacturing sectors) on which the data need to be collected are:

- a) General industrial statistics (like number of establishments, employment, emoluments paid, production, stocks, dispatches, sale prices, details of materials consumed in the operations etc. Stock of fixed assets, depreciation and gross fixed capital formation, etc.).
- b) Detailed Employment statistics for both these sectors is another important set of statistics to be collected. Information on employment with breakup of (i) all employees, (ii) production and non-supervisory employees, (iii) Employees by their membership status with unions and representation, (iv) by employee occupational category and (v) with gender breakup.
- c) Data on job positions (i) openings, (ii) number of hires and (iii) separations .
- d) Detailed Information on occupational hazards and injuries. The importance of these occupational accidents, injuries and illness is given in succeeding paragraphs in unit 5.
- e) If a separate agency is designated for any segment of minerals like atomic minerals or minor minerals or for hydro carbons, data from these agencies be collected from the administrative records maintained by them.
- f) Data on London metal Exchange prices of certain metals traded, domestic prices of certain metals from different sources.
- g) Prices that received by the domestic producers for goods and services.
- h) Data on employee earnings and number of hours worked by occupational groups.
- i) Total Employer compensation costs with the break up: wages and salaries, insurance, retirement, other benefits.

The following list of additional data items for mineral sector be noted for comprehensive data collection^{1, 2}.

- (i) Mineral bearing areas
- (ii) Mineral wise reserves as on a specific date
- (iii) Mineral wise production, shipments, stock details
- (iv) Mineral wise royalties and royalties by type
- (v) Mining leases
- (vi) Royalty collection during a specified period

- (vii) Administrative statistics relating to the calculation, collection and execution of royalties,
- (viii) Export statistics of minerals
- (ix) Foreign exchange received for principle minerals
- (x) List of Countries for exports for each mineral etc.

Some of the occupational categories commonly known in the subsectors of mining and manufacturing industry are listed below⁸.

A: For mining subsector

- i. continuous mining machine operators,
- ii. excavating and loading machine and dragline operators,
- iii. supervisors and managers of construction trade and extraction workers,
- iv. operating engineers and other equipment operators,
- v. truck drivers, heavy and tractor trailer

B: For oil and gas sector

- i. petroleum engineers,
- ii. Pump system operators,
- iii. Refinery operators and gauzers,
- iv. Roustabouts oil and gas
- v. Wellhead pumpers,

C: For support activities for mining sector

- i. Derric operators, oil and gas,
- ii. First line supervisors and extraction workers,
- iii. Rotary drill operators for oil and gas
- iv. Service unit operators for all subsectors

D: for Manufacturing Sector⁹

- i. Helpers- production workers
- ii. Mechanists
- iii. Inspectors, testers, sorters, samplers and weighers
- iv. Purchasing agents, and
- v. Team assemblers etc.

4.3 compilation of various statistics relating to the sectors and other short term indicators

Learning Objectives

1. To understand various statistics to be compiled for the two sectors
2. To understand the importance of the indicators
3. To learn about various types of indicators

From the data on the items, reliable statistics on production of selected minerals, profiles of minerals, mineral reserves, exploration activities, distribution of minerals in

the known areas, use of various inputs in the mineral industry, their input costs, production of various manufacturing products and by products, their input costs, stocks, shipments, exports, , receipts and expenses, capital equipment utilized, assets and liabilities, useful life of equipment, depreciation estimates, employment statistics by occupational category, labour costs, labour turnover, working days, man days worked, absenteeism, earnings, social security benefits, price statistics, and statistics of occupational accidents etc. are compiled.

Especially with the data on earnings and weekly hours worked, average hourly earnings, average weekly earnings and average weekly hours are compiled to study the monthly/ annual trends. Mean wages and median wages paid to different occupational groups are also compiled and studied. Estimates of the employer compensation costs give the quarterly /annual trends in compensations costs. Trends in compensation costs for unionized employee groups or union representatives could also be compiled.

Two important short term indicators one each for the two sectors, known as (i) monthly index on mineral production (including or excluding the atomic minerals) for the mining sector and (ii) monthly index on industrial production for the manufacturing sector are to be compiled. These indices shall further form part of Monthly Index of Industrial production.

The index of industrial production is a quantitative index based on the production of items in physical terms. It is intended to measure changes in volume of production of basket of industrial products to that of base year period, between two periods of time. The index is compiled as a weighted average of production relatives of a specified set of goods or services, generally using the Laspeyre's formula. The item basket includes products produced in Mining sector, Manufacturing sector and Electricity sector. The basket of goods does not include construction. The base year and the item basket are frequently revised to reflect a recent reference period and changing structure of the Industry. The weights are worked out in proportion of the GVA/ Output as available for the base year for each ISIC 1/2/3/4 digit level.

At a given ISIC digit level,

The Laspeyre's formula is given as $I = \frac{\sum (W_i * R_i)}{\sum W_i}$

where I is the index, R_i is the production relative of the i-th item or item group and W_i is the weight allotted to the i-th item/ item group.

The exact coverage, weighting system and method of calculation vary from country to country. In India, for the base year 2004-05, details on the weights at one digit level and number of items and items groups covered are as given below.

Sector	weight	items covered	Item groups
Mining sector	14.157	61 items	1 group
Manufacturing	75.527	620 items	397 groups

Electricity 10.317 1 item 1 group

Base year is 2004-05.

Other important short term indicators (i) producer price index, (ii) import price index and (iii) export price index are also compiled using the data on product prices. The producer price index measures the percentage change in prices received by the producers for goods and services. This index is constructed from the price data supplied by producers. The producer's price is the amount receivable by the producer from the purchaser for a unit of good or service. It excludes any deductible value added tax (VAT) or any deductible tax separately invoiced to the purchaser. It also excludes the transport charges invoiced separately¹⁷.

The import price index reflects the percentage change in the prices paid to the foreign producers/ suppliers for the goods and services purchased and brought into the country. This index is calculated for the prices of one or any specified group of products at CIF import prices. The CIF price is the price of a good delivered at the first entry border of importing country, includes costs, insurance, freight charges¹⁷.

The export price index measures the percentage change in prices received by the country's producers for goods and services sold outside the country. This index is calculated for the prices of one or any specified group of commodities entering into the international trade using f.o.b export prices. The f.o.b prices are free on board prices. It is the market value of goods at the point of custom's frontier of economy. Percent change in the prices from previous month are seen from these indices¹⁷.

Similarly, some other short term indices like (i) output index,(II) total labor hours index, (III) output per hour index, (iv) labor productivity index, (v) unit labor costs index are also compiled.

It is observed that Cameroon, and Uganda publishes index numbers annually and quarterly whereas Egypt publishes monthly. Some countries namely Cameroon, Egypt, Mozambique, Nigeria and Uganda publishes industrial commodity statistics for number of commodities.

UNIT 5

Occupational hazards and work related injuries

5.1 Occupational hazards and work related injuries

Learning Objectives

1. To understand various occupational hazards prevailing in the industry, definitions of fatal and non -fatal injuries
2. To know about the work related injuries and illnesses
3. Causes of injuries and Various Types of injuries

Both the mining and manufacturing sectors present various occupational hazards to the workers employed therein. These occupation hazards produce harmful effects to the health of the workers and injuries to their body parts. The occupational hazards in the mining industry are more diverse and more extreme than those of occupational hazards present in manufacturing industry¹⁴.

For this purpose, an injury or illness is considered as work related if the event or exposure in the work environment causes the resulting injury or illness/condition¹⁴. The difference between the Injuries and illnesses is worth noticed. The cases resulting from an instantaneous incident are considered as injuries and the cases resulting from anything other than the instantaneous ones are considered as illness¹⁴.

The main causes of incidents resulting in injuries or deaths in both the Mining and Manufacturing sectors are (i) fall from heights, (ii) slips /trips or falls on the same level/ floor (iii) vehicular accidents, (iv) injuries while handling lifting or carrying, (v) struck by a moving object/ falling object/moving vehicles and (vi) falls from heights, slips and trips on same level etc.

In Mining industry, miners are also exposed to (i) methane gas explosion, (ii) coal dust explosion, (iii) carbon monoxide poisoning etc². Further, the cause of injury resulted due to slips, trips or falls are further ascertained in relation to the location of the accident like (a) underground, (b) surface, (c) near to a processing plant and (d) others. Similarly, the

cause of injury: struck by moving object/falling object/moving vehicle, is also classified in relation to the location of the accident¹⁴.

The type of injury could be (i) Burn, (ii) Contusion, (iii) fracture, (iv) Laceration, (v) Amputation, (vi) Multiple injuries. The body part injured could be (i) Arm, (ii) Leg, left or right or both, (iii) Head, (iv) Neck (v) Trunk and (vi) Other parts. The severity of injuries are categorized as (i) Fatal, (ii) Major and (iii) Minor.

5.2 OSH programs and ILO's guidelines on collection of data

Learning Objectives

- 1) To understand the OSH frame work, ILO guidelines regarding reliable data collection
- 2) To understand the availability of data and under coverage of work related accidents

The ILO estimates that about 2.3 million workers die each year from work related accidents and diseases¹². It also estimates that the workers suffer 270 million accidents every year and there are at least 335000 fatal injuries caused by accidents at work¹⁵ and about 400,000 deaths occur due to exposure of chemicals annually¹³. The ILO underlined the importance of Occupational Safety and Health (OSH) programs and developed suitable guidelines. These guidelines provide on the systems to be developed both at enterprise level, and at national level for developing preventive safety and health culture¹². The promotional framework for OSH Convention (No 187), OSH Recommendations (No 197) were also adopted by the International Labor Conference in June 2006.

Collection of comprehensive data on the work related accidents and diseases through administrative records and through insurance scheme records was given importance in the ILO guidelines. From this type of data, annual trend in number of fatalities, rate of injury and rate of illness cases per 100 full term workers for (i) the total recordable cases, (ii) cases involving the days away from work, (iii) cases involving the job transfer or restrictions are compiled. In some countries, the fatal incidence rate per 1000 population at risk, and injury incidence rate per 1000 population at risk are compiled. The national OSH profiles are also created.

The occupational accidental data so collected should be analyzed in order to (i) formulate effective national programs, (ii) setting priorities for their implementation, (iii) to have proper risk assessments of chemical and other explosions, (iv) to have risk analytical reports to determine the degree of risk reduction and effectiveness of the

emergency measures available and (v) to understand the coverage of accidents and underreporting of the incidents if any.

Managements should use these results to establish a comprehensive safety standards, and to provide with appropriate measures like (i) sensitization of work environment, (ii) creation of safety environment and work culture to all concerned (workers/contractors/customers). Refresher, remedial and skill improvement training courses to the employees are also conducted¹⁵.

Comprehensive and reliable data on the occupational injuries and diseases for all the OIC member countries is not available at one place due to limited scope of the national reporting systems. Table 10 below depicts the details on occupational injuries (both fatal and non-fatal) in four African OIC member countries for which data is available¹².

Accident rate per 1000 workers at risk is much higher in Tunisia and followed by Algeria when compared to that of Egypt. Incidentally, both Tunisia and Algeria information is based on the insurance records whereas the Egypt figures are from administrative records.

Table 10 is to be pasted here

UNIT 6

Data dissemination and issues in Data collection

And data processing

6.1 Issues in data collection and data processing

Learning Objectives

2. Understand various issues existing in various source agencies, data collection practices
3. To know about the Technical issues
4. To understand the under coverage in work related accidents

Generally, information is collected from government administrative records or records maintained by insurance agencies or from business registers, list frames, through sample surveys of establishments, or through the Labour force surveys, or through the Economic censuses etc. The administrative records are maintained to meet the special needs of administrative agencies. The data compiled from these agencies may not meet the rigorous statistical standards like concepts & definitions, classifications of products, activities etc. as laid down by the international agencies to have proper international comparability.

The list frames and business registers suffer from incompleteness and infrequent mechanism of updating. The data from the sample surveys often suffer from a limited scope and coverage issues, non-response, and other variety of factors relating to sampling designs etc. The census data generally suffers from a variety of non-sampling errors and also involves in huge costs.

In the light of the situation specified above, a judicious mix of collection systems/mechanisms and a healthy practice of data collection techniques following the principles laid down in the international guidelines is required to be established in each country. The questionnaires should be simple and short but at the same time should meet the requirement for generation of core statistics/ indicators that are to be brought out in the relevant subjects.

Similarly, there are many other issues like coverage issues, uniform guidelines, standard definitions, historical and local conventions used in classification, lack of uniform computational methodologies for price indices, issues related to weighting diagrams, frequency of base year revisions, non-uniformity in core statistics, measurement of industrial sickness, lack of uniform guidelines on compilation of technical coefficients on industrial productivity etc. are effecting the quality aspects in the data collection and data processing. These issues need to be addressed.

Generally information on accidents which resulted in more than 3 or 4 days of absence from work are reported / compiled and analyzed in many countries by the concerned

agencies. This induces underestimation of the size of the problem by not including the less serious injuries. Additional information on the age of injured persons, their work experience, time of the day when the accident occurred, day of the week, job title, are also to be collected for a comprehensive study of the accidents and injuries caused therein.

Further data also need to be disseminated according to the principles laid down in the IMF GDDS and SDDS standards. The dissemination of data at some minimum level of classification (say 2 or 3 digit level of ISIC) is also to be followed.

6.2 Data Dissemination practices at national and international level

Learning Objectives

1.To know about the national level publications that provide data

2.To understand about the international level publications / data bases.

Mining sector and Manufacturing sector statistics are disseminated periodically to all important international agencies, government agencies, and to the public in the form of newsletters, mineral / manufacture reports. Different publications are released in different countries. Some of the publications released by various countries are listed below:

- I. Monthly statistics of mineral production
- II. Statistics profiles of minerals
- III. Mineral industry/ sector at a glance
- IV. Minerals year book
- V. Mine directories
- VI. Mineral conservation and development rules
- VII. Health and safety Statistics/ reports in Mining sector
- VIII. Business registers
- IX. Reports on Labour force surveys
- X. Reports on Economic Censuses
- XI. Journal of industrial statistics
- XII. Reports on Small scale manufacturing units
- XIII. Reports on Enterprise surveys
- XIV. Annual survey of manufacturing units
- XV. Annual survey of industries
- XVI. Exports from manufacturing establishments
- XVII. Directories of manufacturing units
- XVIII. Current industrial statistical reports
- XIX. Index of industrial production
- XX. Index of mineral production
- XXI. Index of manufacturing production
- XXII. Producer's price index
- XXIII. Profile of exporting companies
- XXIV. Health and safety Statistics / reports in manufacturing sector

Some international publications and data bases which give comprehensive data on both mining and manufacturing sectors are listed below.

- I. International Year book of industrial Statistics, UNIDO
- II. Monthly bulletin of Statistics Series Q by UNSD
- III. Energy statistics year book, UNSD
- IV. USGS, 2010 Minerals Year book on the Middle East
- V. African Newsletter on Occupational Health and Safety
- VI. Annual Statistical Bulletin of the OPEC
- VII. Health and safety in Great Britain, 2014/15
- VIII. US Bureau of Labor Statistics, Industries at a glance
- IX. Monthly bulletin of statistics Series Q no 509, UNSD Publication
- X. International Labour Organization, Key indicators of Labour Market, 8 th edition
- XI. Statistical Economic and Social Research & Training Centre for Islamic Countries (SESRIC) BASEIND data base
- XII. International Labour Organization, Labour statistics data base (ILOSTAT)
- XIII. International Monetary Fund, World outlook data base
- XIV. World Bank, World development Indicators (WDI) on line data base

GLOSSARY

Glossary:

Item	Units	Definition
C.I.F Prices	National currency or USD	The c.i.f price is the price of a good delivered at the custom boarder of importing country and includes cost, insurance and freight
Fatal occupational injury	Number	An occupational injury that is fatal is the result of an occupational accident where death occurred within one year from the date of the accident
F.O.B. Prices	National currency or USD	The f.o.b prices are free on board prices. It is the market value of goods at the point of custom's frontier of the economy.
Export price index	number	The export price index measures the percentage change in prices received by the country's producers for goods and services sold outside the country. This index is calculated for the prices of one or any specified group of commodities entering into the international trade using f.o.b export prices.
Employees	Number	Employees are people who work for a public or private employer and receive remuneration in wages, salary, commission, tips, or pay in kind or piece rates.
Employment in Industry as percentage of total employment	percentage	Employees in industry corresponds to ISIC sections Mining, Manufacturing, Electricity, Water, and Construction. includes
GDP at current prices	National currency or USD	Gross domestic product at current prices is GDP for current reporting period at current prices, also known as the nominal GDP.It is an aggregate measure of production equal to the sum of the gross value added of all resident institutional units engaged in production.
GDP per capita	National currency or USD	Gross Domestic product per capita is calculated as the aggregate of production divided by the population
Import price index	number	The import price index reflects the percentage change in the prices paid to the foreign producers/ suppliers for the goods and services purchased and brought into the country. This index is calculated for the prices of one or any specified group of products at CIF import prices.
Index of industrial production	number	It is intended to measure changes in volume of production of basket of industrial products to that of base year period, between two periods of time. The index is compiled as a weighted average of production relatives of a specified set of goods or services, generally using the

		Laspeyre's formula.
Industry share in GDP	percentage	Expressed as share of GDP. Industry includes Mining, manufacturing and Utilities (electricity and water). It represents all the economic activities listed in section B,C, D and E of ISIC rev 4.
Manufacture		All activities relating to the transformation of materials, substances or components into new and final products.
Manufacturing share in GDP	Percentage	Expressed as share of GDP. Manufacturing represents the economic activities listed in section C of ISIC rev 4
Metallic minerals		Both ferrous and non - ferrous minerals like iron, lead, gold, zinc and copper,
Natural mineral rents		Sum of oil rents, gas rents, coal rents, mineral rents and forest rents. It is the total revenue that can be generated from the extraction of the natural resources less the cost of extracting
Non-fatal occupational injury with loss of work days	Number	A non- fatal occupational injury is an occupational injury resulted due to an occupational accident that does not lead to death. It entails a loss of working time.
Non-metallic minerals		Includes the fuel minerals and precious stones (coal, lignite, petroleum, natural gas etc.)
Occupational injury		The occupational injury is the case of a worker incurring an occupational injury as a result of an occupational accident.
Producers price index	number	The producer price index measures the percentage change in prices received by the producers for goods and services. This index is constructed from the price data supplied by producers.
Royalties on mineral extraction	National currency or USD	Royalty is a charge collected by the owner of mineral resource in consideration of the exploitation of it by the lessee

READING LIST

- 1) Energy Statistics Year book, 2011, Series J, No 55, UNSD Publication
- 2) United Nations international recommendations for industrial statistics 2008, statistics papers no 48, rev -1
- 3) Monthly bulletin of Statistics Series Q no 509 (May 2015), UNSD Publication
- 4) International Standard Industrial Classification of all Economic Activities, Revision 4, UN publication 2008
- 5) USGS 2010: Minerals Year book, The Middle East

REFERENCES

- 6) IBM 2011, Mineral Royalties, Jan 2011 by Indian Bureau of Mines, Ministry of Mines, India.
- 7) Mining in India , Wikipedia
- 8) UN publication (2008): International Standard Industrial Classification of all Economic Activities, Rev 4
- 9) USGS 2010: Minerals Year book, The Middle East
- 10) AfDB 2012, Africa Economic Brief, volume 3, issue 6, June 2012
- 11) Alkhabeer Capital: GCC Budget Analysis 2014,
- 12) SESRIC: BASEIND data base
- 13) US Bureau of Labor Statistics , industries at a glance, Mining sector
- 14) US Bureau of Labor Statistics , industries at a glance, Manufacturing sector
- 15) 10.US Census Bureau Guide to data sources for Manufacturing,
- 16) 11. Swaraj Kumar Nath, Industrial statistics of India: status and issues, paper submitted to expert group meeting on industrial statistics Sept 2005, Link: ESA/STAT/AC 105/7.
- 17) Seiji Machida 2009: System for collection and analysis of occupational accidents data, African News letter on occupation health and safety, vol 19, No1, Apr 2009.
- 18) Pius W. Makhonge Kenya (2009) : Chemical Safety and accident prevention, African News letter on occupation health and safety, vol 19, No1, Apr 2009.
- 19) Dolf Kofi Badu Sutherland , Ghana 2009: Occupational injuries in a gold mining company in Ghana, African Newsletter on occupation health and safety, vol 19, No1, Apr 2009.
- 20) A paper by LA Abongomera, Uganda 2009: The impact of globalization on occupational health services, a case of developing countries, African Newsletter on Occupation health and safety, vol 19, Nov1, Apr 2009.
- 21) HSE2014/15: Health and safety in manufacturing in Great Britain,
- 22) OECD2008: Glossary of statistical terms 2008
- 23) International Monetary Fund 2003: The Data quality assessment Frame work.
- 24) World Bank, World Development Indicators (WDI) on line data base
- 25) International Monetary fund, world outlook data base

- 26) International labour Organization: Key indicators of Labour market, 8 th edition
- 27) International labour Organization, World Employment and social outlook data base.
- 28) International labour Organization, Labour statistics data base (ILOSTAT).

TEMPLATE