सत्यमेव जयते

National Statistics Office
Ministry of Statistics and Programme Implementation
Government of India

DATA FOR DEVELOPMENT

Report of the Technical Advisory Committee

New Series of All India Index of Industrial Production 2022–23

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Letter of Transmittal

Dr. Saurabh Garg
Secretary, Ministry of Statistics and Programme Implementation
Government of India,

Dear Dr Saurabh,

I have the pleasure of submitting the report of the Technical Advisory Committee for base revision of All India Index of Industrial Production (TAC-IIP) on the behalf of the entire Committee. The report covers detailed deliberations and recommendations on various conceptual and methodological aspects of the entire base revision exercise keeping in view the international best practices.

The TAC has had extensive deliberations through its 11 meetings so far, three stakeholders meeting, several other formal and informal interactions besides inviting structured feedback on specific technical issues through three discussion papers in public domain.

The key improvements being recommended in the report are : (i) introduction of chain-linked IIP in addition to the fixed base index, (ii) substitution and augmentation of factories to address the problems of creative destruction of firms and products amid changing production lines that imparts a downward bias to output measurement, (iii) selection of item basket to capture updated production structure with a better treatment of items not elsewhere classified (n.e.c), (iv) preparation of the new weighting diagram in line with the contemporary production structure, (v) greater granularity in electricity index between non-renewable and renewable energy, (vi) shift from arithmetic mean to geometric mean based linking factors at the level of broad aggregates for its better statistical properties, (vii) moving towards homogenous methodology and fuller coverage of state-level IIPs in alignment with methodology for all-India IIP, (viii) separate indices for unincorporated enterprises and (ix) introduction of gas supply, water supply and sewerage & waste management as part of the IIP in line with the international recommendations of IIP.

Certain recommendations of the TAC-IIP are forward-looking that may take time to implement but are nevertheless important. These include: (i) developing a de-seasonalization unit with MoSPI to start disseminating deseasonalised data series as soon as may be possible, (ii) developing indices for unincorporated sector by considering an industry level indicator in ASUSE survey, and (iii) developing business registries through the use of GST data, which has a potential to significantly improve IIP. TAC-IIP suggested an exercise on this to be carried out over a year or two using GST data before taking a view on the robustness of the information to capture it for activity levels.

The final product in the form of this report excites me and hopefully likewise many others. There will naturally be many who may disagree with many of the recommendations. But we have made these

recommendations after careful deliberations and a heavy weight on our consciousness that any changes could bring some temporary disruptions in dataflows and increase workload especially when we expand coverage or change compilation methodology. Yet, I am confident that our adopted structured framework will bring about improvements in IIP compilation that will significantly contribute to a more timely and better-quality information on industrial activity. The release date for IIP has already been advanced by two weeks thereby significantly improving the information for policy making; for instance, the MPC now has IIP data with one month lag instead of two.

On the behalf of the TAC-IIP and on my own behalf, I express my thanks to MoSPI for giving us this opportunity and I wish statisticians in MoSPI the very best in their continued drive to improve the IIP and other parts of the statistical system. Every stone they turn will build into a credible edifice of the Indian statistical system.

(Mridul Saggar)
Chair, TAC-IIP
15th May 2026
New Delhi

ACKNOWLEDGEMENTS

The revision of the base year of the all-India Index of Industrial Production (IIP) from 2011-12 to 2022–23 has been an extensive exercise involving conceptual, methodological, operational, and technical deliberations across multiple institutions and stakeholders. The successful completion of this report and the new IIP framework has been made possible through the collective efforts, expertise, and cooperation of numerous individuals and organizations.

On behalf of the TAC, I wish to express our gratitude to Dr. Saurabh Garg, Secretary MoSPI. I have interacted with the Ministry times and again for more than three decades and wish to share my observation that credit is due to him for bringing in a new whiff in the Ministry for the dynamism shown in bringing about an improvement in the statistical system with much transparency. He interacted with the TAC on many occasions, and his perceptions and support were helpful in honing the TAC's work.

I take this opportunity to express my sincere gratitude to Sh. N.K. Santoshi, Director General (Central Statistics), MoSPI for his priceless insights, and constructive suggestions throughout this exercise. His steadfast and resolute support was instrumental in shaping the direction of the revision exercise.

I express my sincere gratitude to the members of the TAC-IIP for their invaluable guidance, expert insights, and continuous support throughout the revision exercise. The Committee's deliberations on methodological improvements, evolving industrial structures, and international best practices have significantly contributed to strengthening the revised IIP framework.

TAC-IIP gratefully acknowledges the contributions made by various Ministries, Departments, source agencies, and States Government Directorate of Economics & Statistics (DES) offices that provided data support, technical inputs, and domain expertise during the course of the revision. The active cooperation extended by the source agencies responsible for supplying monthly production data has been instrumental in strengthening the coverage and representativeness of the new series.

Much of the hard work was put in by the Economic Statistics Division (ESD) of MoSPI. The thoughts and clarity brought before TAC by Dr. Dalip Singh, ADG, was admirable. He was ably supported by Ms. Ankita Singh, DDG who also acted as Member Secretary. The work done by Sh. Aparoop Bhattacharyya, SSO on deseasonalisation and in report drafting also deserves special mention.

All officers and staff of ESD associated with the Index of Industrial Production unit (**Annexure II)** deserve appreciation for their dedicated efforts in undertaking detailed analysis of industrial data, revision of the item basket, construction of weighting diagrams, preparation of factory frames, examination of classification systems, and development of methodological improvements incorporated in the new series.

The work carried out by the Field Operations Division, especially Sh. Kishore Kumar, ADG and Ms. Sunitha Bhaskar, ADG in accomplishing the backlog data collection for this new series of IIP is invaluable and highly commendable.

Thanks, are also due to the IMF which provided the Technical Assistance to MoSPI on some specific technical issues that were being deliberated TAC-IIP and to the Office for the National Statistics (ONS), UK for the discussions I had with them early on to explore how we might benefit from their compilation practices and experiences. Personally, I am indebted to IIM Kozhikode for providing me time and encouragement to pursue this work for public good.

The successful completion of this report is a team work that reflects commitment, technical competence, and sustained hard work of the entire team. It is hoped that the new IIP series with base year 2022–23 will contribute significantly towards strengthening India's industrial statistics framework and provide a more reliable and analytically sound measure of industrial performance for policymakers, researchers, businesses, and the public at large.

(Mridul Saggar)
Chair, TAC-IIP
15th May 2026
New Delhi

ACRONYMS

AFS *– Adjustment Factor for Substitution*

AFA *– Adjustment Factor for Augmentation*

AM *– Arithmetic Mean*

ARIMA *– Autoregressive Integrated Moving Average*

ASI *– Annual Survey of Industries*

ASUSE *– Annual Survey of Unincorporated Sector Enterprises*

BR *– Business Register*

CEA *– Central Electricity Authority*

CPC *– Central Product Classification*

CPI *– Consumer Price Index*

DAE *– Department of Atomic Energy*

DPIIT *– Department for Promotion of Industry and Internal Trade*

ESD *– Economic Statistics Division*

EPI *– Export Price Index*

FE *– Final Estimates*

FOD *– Field Operations Division*

GDP *– Gross Domestic Product*

GM *– Geometric Mean*

GSDP *– Gross State Domestic Product*

GST *– Goods and Services Tax*

GVA *– Gross Value Added*

GVCs *– Global Value Chains*

GVO *– Gross Value of Output*

HCES *– Household Consumer Expenditure Survey*

HS *– Harmonized System*

IBM *– Indian Bureau of Mines*

IIP – *Index of Industrial Production*

IoP *– Index of Production*

IREL *– Indian Rare Earths Limited*

IR *– Intermediate Revision*

IRIIP *– International Recommendations for the Index of Industrial Production*

IRIS *– International Recommendations for Industrial Statistics*

ISIC *– International Standard Industrial Classification for all economic activities*

ISP *– Index of Services Production*

MCDR *– Mineral Conservation and Development Rules*

MoPNG *– Ministry of Petroleum and Natural Gas*

MoSPI *– Ministry of Statistics and Programme Implementation*

NAICS *– North American Industry Classification System*

NAS *– National Accounts Statistics*

NIC *– National Industrial Classification*

NPCMS *– National Product Classification for Manufacturing Sector*

NSC *– National Statistical Commission*

NSS *– National Sample Survey*

n.e.c. *– Not Elsewhere Classified*

OEA *– Office of the Economic Adviser*

OECD *– Organisation for Economic Co-operation and Development*

PAYE *– Pay As You Earn*

PE *– Provisional Estimates*

PLI *– Production Linked Incentive*

PNG *– Piped Natural Gas*

PPI *– Producer Price Index*

QE *– Quick Estimates*

RE *– Revised Estimates*

REE *– Rare Earth Elements*

REPMs *– Rare Earth Permanent Magnets*

regARIMA *– Regression Autoregressive Integrated Moving Average*

SNA *– System of National Accounts*

TAC-IIP *– Technical Advisory Committee for Base Year Revision of All India Index of Industrial Production*

ToR *– Terms of Reference*

UBC *– Use-Based Classification*

UNSC *– United Nations Statistical Commission*

UNSD *– United Nations Statistics Division*

VAT *– Value Added Tax*

WPI *– Wholesale Price Index*

EXECUTIVE SUMMARY

The All India Index of Industrial Production (IIP) is one of the country's most important high-frequency economic indicators, widely used for measuring short-term industrial performance, policy formulation, GDP estimation, and economic analysis. As one of the earliest available indicators of economic activity, the IIP plays an important role in understanding the short-term movement of the industrial sector and the broader economy. The report recognizes that the IIP is not just a technical statistical indicator, but an important measure that helps governments, businesses, researchers, and investors understand the health and direction of the economy. Since it provides one of the earliest signals of industrial performance, the IIP plays a crucial role in economic planning, policymaking, and market analysis. The need for periodic revision arises from the dynamic nature of the economy. The structure of production, the relative importance of industries, and the range of products manufactured undergo continuous change over time. Regular revisions of the base years of economic indicators like IIP are therefore essential to ensure that they remain representative of current industrial activity and continues to accurately reflect evolving economic realities.

Further, there have been significant advancements in statistical methodologies and computational capabilities over this period. Processes that were difficult to execute have now become relatively easier to implement. In addition, new and more comprehensive data sources have emerged, which warrant careful consideration and have the potential to enhance the coverage, accuracy, and overall efficacy of the index.

Keeping the above under consideration, the Ministry of Statistics and Programme Implementation (MoSPI) constituted the Technical Advisory Committee on Base Revision of Index of Industrial Production (TAC-IIP), under the chairmanship of Dr. Mridul K. Saggar, Professor, IIM Kozhikode. The composition of the Committee may be seen in **Annexure I**.

The Terms of Reference of the TAC-IIP are:

i) To align the base year for IIP with the base year for National Accounts.
ii) To review the existing methodology and suggest improvements in the context of international practices
iii) Selection of a representative item basket
iv) Derivation of weighting diagram for the selected items
v) To identify the elementary source units (factory/ mill etc.) for collection of production data for the purpose of IIP compilation and also to examine the feasibility of integration of data collection for IIP and WPI for common set of factories
vi) To review the trial IIP before releasing

vii) To suggest procedures for substitution of factories in case of closure or change in production line and also to suggest measures to suitably consider new large sized factories, which come in production during a particular base period

viii) To deliberate on adoption of chained linked IIP in place of fixed base IIP

ix) To review linking factor of 2011-12 series and new series

x) To review recommendations of various committees for improvement of IIP

xi) Any other issue with the permission of the Chair

After its constitution, the TAC-IIP held eleven meetings. It also had formal and informal interactions with several stakeholders. This report has been prepared based on the conclusions drawn during these meetings and other interactions.

Plan of the Report

i) The Report of the TAC-IIP is organised into the following eight chapters:

ii) Chapter I: Introduction

iii) Chapter II: Choice of Base Year for IIP

iv) Chapter III: Conceptual Framework

v) Chapter IV: Methodological Framework

vi) Chapter V: State level IIP

vii) Chapter VI: Substitution and Augmentation of Factories

viii) Chapter VII: Chain-based Index of Industrial Production

ix) Chapter VIII: Additional Areas for broadening scope and forward looking for IIP

The Report of the Technical Advisory Committee for Base Year Revision of All-Index of Industrial Production (TAC-IIP) presents a detailed assessment of the changing nature of industrial economy of the country and the growing need to update the framework for assessing it. The report explains that India's industrial landscape has changed significantly over the past decade. Technological innovation, digitalization, automation, renewable energy expansion, and changing global supply chains have transformed the way industries operate. At the same time, India continues to have a diverse industrial structure where modern technology-driven industries coexist with traditional manufacturing systems and small-scale enterprises. The Committee appreciates that this combination of old and new industrial systems makes the measurement of industrial production increasingly complex and requires statistical methods to continuously evolve.

Central to this report, is the idea that economic statistics must keep pace with the economic transformations. New products, emerging technologies, evolving production systems, and changing patterns of industrial activity demand a more dynamic and responsive methods of measurement. Industrial statistics cannot remain fixed while industries themselves are rapidly changing. Summary of the deliberations held, highlighting the important issues, is presented below:

- **Selecting Item Basket with 'n.e.c.' items:** The Committee deliberated on the earlier practice of excluding 'n.e.c.' (not elsewhere classified) items from the item basket and proportionately redistributing their output among other items. While this approach ensured simplicity and weight consistency, it was noted that such categories often capture specialized, diversified, and emerging products that reflect evolving industrial activity. The Committee observed that their exclusion could reduce granularity and sectoral representativeness of the manufacturing basket, and emphasized the need to improve coverage to better reflect the changing structure of industrial production.
- **Substitution and augmentation of factories**: The Committee deliberated on the need for systematic substitution/augmentation of factories in the IIP panel to reflect structural changes in the industrial sector. It noted that over time, some units may close down, change their line of production, or become non-representative, while new units emerge with significant output shares. The Committee emphasized that timely substitution of non-operational units and augmentation with comparable and representative factories is essential to maintain the relevance, stability, and representativeness of the index.
- **Chain-linked Indices of IIP**: The proposal to introduce a chain-based IIP was examined in light of structural changes in industrial production and international best practices. Unlike the traditional fixed-base Laspeyres approach, chain-linking allows periodic (typically annual) updating of weights, thereby reducing substitution bias and weight obsolescence. International guidelines, including the Organisation for Economic Co-operation and Development (OECD) and recommendations under IRIIP (2010), support the adoption of chain-linked indices for short-term indicators.
- **Seasonal Adjustment of IIP series:** The Committee deliberated on the methodology for seasonal adjustment of the IIP and broadly agreed on the approach to be adopted, while highlighting certain practical challenges. It discussed the treatment of abnormal periods such as the COVID-19 pandemic, noting that such disruptions should be treated as outliers within the modelling framework to avoid distortion of seasonal factors. The identification of appropriate calendar regressors was also examined, particularly in the Indian context where national and clustered regional holidays may have varying combined effects on production. Further, the Committee noted that a sufficiently long time series is essential for reliable seasonal adjustment to ensure stable estimation of seasonal patterns and proper treatment of calendar effects and outliers.
- **Linking factor for IIP series:** The Committee deliberated on the methodology for deriving linking factors to maintain continuity and comparability between successive IIP series after base year revision. It examined both Arithmetic Mean and Geometric Mean approaches and noted that, given the ratio-based nature of the IIP, the Geometric Mean method is more conceptually appropriate and yields smoother and more consistent results. The Committee also

discussed the appropriate level of computation and observed that linking factors should be derived only at the aggregate level—namely, for the General Index and major sectors—to ensure methodological robustness and practical usability.

- **Separate indices for the Unincorporated sector** The Committee deliberated on the feasibility of compiling a separate production index for the unincorporated manufacturing sector, noting that the existing IIP primarily captures the organised sector. It discussed the inherent challenges arising from the small, scattered, and dynamic nature of enterprises in this sector, which make the conventional panel-based approach unsuitable. The Committee examined the possible use of ASUSE data as a basis for developing an industry-level indicator and emphasized the need for careful evaluation of data adequacy, methodology, and stability before moving toward implementation.

In addition to the above methodological deliberations, several structural and sectoral improvements were also examined. The report recommends expanding the scope of the IIP so that it captures newer and emerging sectors of the economy. In the mining sector, the Committee suggested including minor minerals and rare earth minerals because they are becoming increasingly important for infrastructure, renewable energy, electronics, and advanced technologies. In manufacturing, the report emphasizes the need to include new and emerging products while improving the way industrial items are classified and measured. It recommends the use of the Producer Price Indices rather than the Wholesale Price Indices for the purpose of deflation to keep the IIP abreast with the statistical standards set globally.

Another major recommendation relates to electricity and utilities. The Committee proposed separating non-renewable electricity generation from renewable electricity generation so that India's progress towards clean energy can be measured more clearly. It also recommended including activities such as gas distribution, water supply, sewerage, and waste management within the scope of the IIP. These additions would make the index more comprehensive and more closely aligned with international statistical standards.

The report further examines the broader framework of industrial activity and explains the importance of aligning India's industrial statistics with internationally accepted concepts and standards. It discusses the role of industrial classifications, product classifications, and price deflators in ensuring consistency, comparability, and analytical usefulness of industrial data. The Committee also underlines the importance of maintaining coherence between the IIP and other major macroeconomic indicators such as National Accounts and the Price Indices in order to strengthen the overall credibility of the national statistical system.

The report views the revision of the base year of IIP not merely as a routine statistical exercise, but as part of a larger process of modernizing India's economic data systems to better reflect present-day realities and to make the IIP more responsive to the diverse demands of its users. It recognizes that the country's economy is passing through a period of rapid structural and technological change and argues

that statistical systems must evolve accordingly. By combining historical perspective, conceptual clarity, methodological reflection, and institutional analysis, the report provides a comprehensive understanding of the challenges and opportunities involved in measuring industrial production in a modern and evolving economy.

SUMMARY OF RECOMMENDATIONS

The Technical Advisory Committee on Index of Industrial Production (TAC-IIP) undertook extensive deliberations over a series of meetings to examine various aspects related to the revision of the Index of Industrial Production (IIP). The Committee reviewed the existing methodology, scope, coverage and alignment of the IIP with other major macroeconomic indicators to ensure greater consistency and relevance and made the following recommendations.

- **CHOICE OF BASE YEAR FOR IIP**
  - Normalcy of the base year and consistency with the base years of other key macroeconomic indicators (GDP, CPI and WPI) were considered while selecting 2022–23 as the new base year. Accordingly, **TAC-IIP recommended revising the base year of the Index of Industrial Production (IIP) from 2011–12 to 2022–23.**

- **SCOPE AND COVERAGE OF THE IIP**
  - The TAC-IIP considered several steps for expanding and better covering the contemporary industrial structure in the new series with 2022-23 as the base year. These include incorporation of minor minerals and critical minerals in the mining and quarrying output, better measuring output in the manufacturing sector in several ways including dropping and adding items covered, inclusion of gas supply, water supply, and sewerage & waste management. Accordingly, TAC-IIP has recommended the following sector-wise expansion of scope:
    i. Mining & Quarrying Sector: Rare Earth and minor minerals may be included
    ii. Manufacturing Sector: Continue to cover NIC Division 10 to 32 Division
    iii. Electricity and Gas supply: Generation of electricity and distribution of Gaseous fuels may be included in the new series of IIP. The generation of electricity by non-renewable and renewable sources may be disseminated separately.
    iv. Water supply; sewerage, waste management: Number of tap connection in rural and urban areas may be considered as the variable for tracking the water supply sub sector. Similarly, for Sewerage sub sector, the number of Sewerage/septage connections (reported in 500 AMRUT cities) may be considered as the variable. For waste management, waste collected and processed in urban areas may be taken as the variable.

- **STATISTICAL UNITS AND CLASSIFICATION TO BE USED**
    i. As in the current practice, the elementary statistical unit for collection of data may continue to be establishments only, i.e., factories, mills, etc. and not enterprises. This is in keeping with IRIS 2008 and IRIIP 2010.

ii. TAC-IIP recommended that the compilation and dissemination of the all-India IIP be undertaken as per the latest version of NIC, i.e., NIC 2025, for which concordance between NIC 2008 and NIC 2025 may be used.

- **USE BASE CLASSIFICATIONS**
  - **TAC-IIP recommended that the six Use-Based Classification categories adopted in the IIP with base year 2011-12 will continue in IIP with base year 2022-23, as below:**
    - Primary Goods
    - Capital Goods
    - Intermediate goods
    - Infrastructure and Construction Goods
    - Consumer Durable Goods
    - Consumer Non-Durable Goods

- **PRICE DEFLATORS**
  - TAC-IIP recommended that the Output PPI should be adopted as the preferred deflator for the new IIP series (base year 2022–23) once it becomes available. Until then, the WPI may continue to be used as an interim measure.

- **SELECTION OF ITEM BASKET AND FACTORIES**

ITEM BASKET SELECTION

- **Mining & Quarrying Sector**
  i. TAC-IIP recommended that the item basket for the Mining and Quarrying sector would comprise of 34 fuel and MCDR minerals (metallic and non-metallic), one (01) rare earth mineral and nine (09) minor minerals.
- **Manufacturing Sector**
  i. The item basket for IIP with base year 2022-23 would be selected based on data from ASI 2021-22 and ASI 2022-23.
  ii. Where items are found to be produced in different industries in ASI, the items would be aligned with the industry where it has the highest output.
  iii. The "n.e.c." category items would be retained for selection in the item basket. On the eventuality of selection of "n.e.c." items, the services of the Field Operations Division of NSO may be taken to identify the specific products being produced under these categories.
  iv. The item basket would be drawn at the industry group (NIC 3-Digit) level ensuring adequate coverage and robustness of the item basket.

v. Two sets of items are to be selected from the ASI data for 2021-22 and 2022-23 so as to ensure that all products contributing to up to 90% of the output of each industry group (NIC 3-Digit) is selected. The common items from these two sets would comprise the item basket for IIP with base year 2022-23.

vi. If it is observed that the common items selected for a particular industry group have an output of less than 80 percent of the output of the industry group in 2022-23, the item basket for the group is to be augmented to include further items from the ASI 2022-23 item set till at least 80 percent of the GVO of the industry group is covered.

vii. To ensure representation of emerging items in the item basket for all-India IIP, all such items from ASI 2022-23 that account for more than 2 percent in the industry group (NIC 3-Digit) shall be included in the item basket for IIP, even if they do not qualify for selection as per the methodology detailed above.

- **Electricity & Gas Sector**

  i. TAC-IIP recommended the creation of two separate items in the electricity sector, viz., Non-Renewable Electricity Generation and Renewable Electricity Generation, in the item basket for the Electricity sector for IIP with base year 2022-23.

  ii. The TAC-IIP recommended the inclusion of Distribution of gases in the item basket for IIP with base year 2022-23. This item is to be placed under the Electricity and Gas sector.

- **Water Supply, Sewerage & Waste Management**

  i. TAC-IIP recommended that for the supply of water, the number of tap connections would be taken as the variable.

  ii. For Sewerage, the TAC-IIP recommended the number of sewerage / septage connections in the 500 AMRUT cities as the variable.

  iii. For Waste Management, the waste collected and processed in urban areas was recommended to be the variable.

FACTORIES SELECTION

- **Methodology for Selection of Factories:** TAC-IIP recommended that

  i. Factories accounting for up to 80 percent of the total GVO of the items in the item basket are to be selected for inclusion in the reporting panel of factories.

ii. A minimum threshold of at least four factories per item is to be maintained to reduce the risk of volatility arising from dependence on a limited number of units.

iii. In cases where fewer than four factories met the 80 percent criteria, the panel is to be augmented with factories from the ASI 2022-23. If factories were not available for selection in the ASI data for 2022-23, The factories available in the 2011-12 series of IIP were also considered for augmentation.

iv. In cases where the number of factories cannot be increased further, attempts would be made to merge the item with other items/ item groups with similar characteristics.

v. In cases of niche and emerging items where the number of producing factories is lower than the decided threshold of four factories, the item may be retained in the item basket. If the factories producing such items closed down during the currency of the series hampering the data flow, such items would be removed from the item basket and their weights would be distributed among other items within the same industry group

vi. Where identified factories are not available due to closure, non-response, or other operational constraints, the reporting frame is augmented with factories identified in the subsequent rounds of ASI frame and with lists maintained by source agencies.

- **PREPARATION OF WEIGHTING DIAGRAM**
  - Sectoral Weights for "Mining & Quarrying", "Manufacturing", "Electricity & Gas Supply", and "Water Supply, Sewerage & Waste Management" are to be based on their respective shares in national GVA at current prices for the year 2022-23 derived from the NAS. These sectoral weights reflected the relative contribution of each sector to the overall industrial economy

  - **Mining & Quarrying Sector**

    The TAC-IIP recommended the weights for the minerals are to be assigned as per their proportion in the GVA of the mining sector, using the GVA data received from NAS and IBM.

  - **Manufacturing Sector: TAC-IIP recommended the following** methodology for distribution of weights for the Manufacturing sector of IIP with base year 2022-23:

    Weights at NIC 2-digit Level

i. The total weight of the Manufacturing sector, as derived from its share in GVA at current prices from NAS 2022–23, is distributed across NIC 2-digit industry groups in proportion to their respective GVA in ASI 2022-23.

Weights at NIC 3-digit and 4-digit Levels

ii. The weights assigned at the NIC 2-digit level are further distributed to the 3-digit in proportion to their respective GVA figures in ASI 2022–23. The NIC 3-digit level weights are then distributed among the NIC 4-digits using their shares in GVA of for their respective NIC 3-digit.

Weights at Product/Item-Group Level

iii. At the most disaggregated level, the 4-digit industry weights are distributed among the selected item groups in proportion to their Gross Value of Output (GVO) contribution within the respective 4-digit industry group.

- **Electricity & Gas:** The TAC-IIP recommended the use of the following methodology for assigning weights to the electricity and Gas sector for IIP with base year 2022-23:
  i. The quantity of electricity generated by source may be multiplied by the all-India average rate of sale of power for the sources in the F.Y. 2022-23 to get the estimated revenue by source of power.
  ii. Using this revenue data, the proportional shares of Hydro, Thermal (coal and gas based), Nuclear, Solar and Wind electricity is to be derived.
  iii. The weight of the electricity sector derived from NAS would then be divided among all the sources of electricity as per the proportions calculated above**.**
  iv. For Gas distribution, the TAC-IIP recommended the use of the GVA of gas distribution from NAS 2022-23 for deriving the weights for this sector.

- **Water supply, Sewerage & Waste Management:** The TAC-IIP recommended that weight for this sector is to be derived from the share of the sector in NAS 2022-23.

- **INDEX COMPILATION METHODOLOGY**
  - **Data Variable to be used**: TAC-IIP recommended a hybrid approach in capturing the industrial output. Volume measures would be used for capturing output of homogeneous item groups and the value of output would be captured in cases of heterogeneous item groups and in cases where the quality difference within the item group is high. For items where the period of production is more than a month, the "work in progress" in value terms is to be taken as the measure of output.

- **Estimation of Non-Response:** To address the issue of non-response, the TAC-IIP had recommended to use of imputation techniques for estimating missing values as per the table below:

Scenario	Imputation technique
Factory closed	Substitution of factory
Factory changed line of production	Substitution of factory
Factory producing item but refuses to provide data	Substitution of factory
Temporary non-response (< 6 months)	Average Growth Rate of Reporting factories OR Average of previous 3 or 12-months

- **Compilation of IIP:** TAC-IIP recommended the continued use of Laspeyres type index for the compilation of all-India IIP. **The TAC-IIP also recommended that:**
    i. IIP is to be compiled using a bottom-up approach where, the item group level indices are compiled first. These indices would then be aggregated to NIC 5-/ 4-/ 3-/ 2-Digit level indices.
    ii. The NIC 2-Digit level indices would be aggregated to get the Manufacturing sector indices.
    iii. The sector level indices for Mining & Quarrying, the Electricity & Gas supply and Water supply, Sewerage and waste management sectors would be calculated by aggregating their respective item level indices.
    iv. The General Index for IIP would be calculated by aggregating the sector level indices.
- **Computation of Use Based Category-wise Indices**

  TAC IIP recommended that the item level indices may be aggregated directly as per the Use Based Categories.

- **DISSEMINATION OF IIP**
    i. The TAC-IIP recommended that the existing practice of monthly dissemination of the IIP through official press releases and publication on the website of the MoSPI be continued. It underscored the importance of providing indices at multiple levels of disaggregation, including sectoral indices, industry-wise indices at the NIC 2-digit level, and use-based category indices, so that users can effectively analyse trends in industrial production.
    ii. The TAC-IIP further recommended that data should continue to be made available in user-friendly formats such as Excel to facilitate research and analytical work. In addition, the Committee suggested that appropriate

mapping between industrial classification (NIC) and use-based categories be maintained and made publicly available to improve interpretability of the data.

- **COMPUTATION METHOD OF LINKING FACTOR**
    i. TAC-IIP recommended the use of Geometric Mean method for linking the 2004-05 series with the 2011-12 series and the same approach may be adopted for linking the 2011-12 series of IIP with the new 2022-23 series.
    ii. TAC-IIP recommended calculating the linking factors at the aggregated levels only, i.e., at the level of General Index and at the sectoral levels only.

- **STATE LEVEL IIP**

  TAC-IIP recommended the following:

  i. State level IIP should align with the all-India IIP in terms of methodology and scope. The methodology for selection of item basket and weights should be in line with that for the all-India IIP. The coverage of State-level IIP include the sectors covered in all-India IIP.
  ii. For the drawing of item basket, the pooled ASI data (for both Central samples and State samples) should be used ensuring a robust database for the selection of item basket and the weighting diagram of the State-level IIP. In the event where the State ASI is not available, the IIP item basket and weights for the State may be drawn using the Central data only.
  iii. The classifications used in the all-India IIP, namely NIC 2025 and the Use-Based Classifications, should also be used in the State-level IIP. This would ensure consistency and comparability across States/UTs.
  iv. The data collected by MoSPI for the common items pertaining to the State may be shared with them for ease of data collection. This would also reduce the respondent burden of the data provider.
  v. Regular capacity building initiatives may be undertaken by MoSPI to enhance the statistical capabilities of the State Governments.

- **SUBSTITUTION AND AUGMENTATION OF FACTORIES**

  TAC-IIP recommended the following**:**

  i. Adoption of a formal substitution framework, whereby factories that are permanently closed or have changed their production line are replaced with suitable alternatives producing the same item.
  ii. Substitution of factories is to be undertaken as per the methodology described in para 6.15 to 6.23

iii. Augmentation of factories should be undertaken only in extreme circumstances based on rule based objective criteria.

iv. Augmentation is to be done as per methodology described in para 6.27 to 6.32.

- **CHAIN-BASED INDEX OF INDUSTRIAL PRODUCTION**

TAC-IIP recommended the following:

i. The chain-linked approach in addition to the fixed-base IIP may be adopted as an improved methodology for IIP compilation, subject to addressing data and operational constraints.

ii. The annual overlap technique should be used for linking high-frequency indices with annual weights to ensure consistency in aggregation.

iii. Annual updating of weights should be implemented using the latest available NAS and ASI data, even if provisional, to enhance representativeness.

iv. A structured revision calendar should be followed to incorporate successive updates in weights. The updation of weights should be undertaken only in the beginning of the financial year to enable a structured transition and ensure comparability.

v. The users of the indices should be adequately sensitised about the features of the chain-linked framework and the revision schedules to avoid confusion.

- **ADDITIONAL AREAS FOR BROADENING SCOPE AND FORWARD LOOKING FOR IIP**

i. The TAC-IIP recommended that the seasonal adjustment of IIP may be undertaken only after availability of the desirable length of time series data (5 years monthly data). Further, it also recommended that the factors like the treatment of systemic shocks and identification of calendar regressors may be carefully considered before undertaking the exercise. Although the TAC-IIP observes that X-13 ARIMA-SEATS is a fairly robust model for seasonally adjusting IIP, it recommended that the choice of model and technique may be decided at the time of undertaking the exercise after considering the latest options available at that time.

ii. TAC-IIP recommended that the compilation of production indices for the manufacturing sector of the unincorporated sector of the economy may be undertaken only after studying the results over a period of time.

CHAPTER I

INTRODUCTION

India has a long-standing tradition of releasing IIP that started with base year 1937, more than a decade before International Recommendations emerged on compiling such an index. As amongst the early country that started tracking the short-term trends based on this volume indicator, it has set a global example for comprehensive tracking of industrial production despite its dispersion in geographical and structural dimensions. To keep pace with changing industrial structures, it has revised its base nine times so far. In September 2024, it once again set up a committee to suggest base revision with a wide remit to also bring about conceptual and methodological improvements.

Introduction

1.1. The Index of Industrial Production (IIP) is a fundamentally important measure of economic activity, that encapsulates short-term output trends in the industrial sector through a headline metric and a set of its components. It serves as a critical input for macroeconomic assessment, policy formulation, and market analysis. As one of the earliest available high-frequency indicators of real sector performance, the IIP plays a pivotal role in tracking cyclical conditions, informing fiscal and monetary policy deliberations, and shaping expectations of businesses and investors, helped by macro and sectoral analysts.

1.2. As nations grow and develop, over a long run, its economies undergo a structural transformation. Certain sectors lose importance while others gain. This growth is also accompanied by deregulation and liberalisation that may pose difficulties in data collection as one shift away from administrative data to more market generated data. Statistical systems need to continuously evolve to these challenges to tap more digitally generated data, while maintaining data integrity and meeting norms related to use of propriety information besides conforming to data privacy laws. These are difficult challenges that relate to any macro or micro statistics. However, they turn even more acute when dealing with industrial statistics as they are prone to a very fast paced process of creative destruction, where traditional industries, their factories and their lines of production quickly give way to newer forms of tangible outputs.

1.3. Currently, industry is said to be witnessing its fourth revolution. Information and use of digital technology that started with the third industrial revolution has morphed into Industry 4.0 where industrial networks are using cyber-physical systems to monitor a wide range of new technologies. Yet most of these technologies are still at its experimental stage and its widespread adoption is still at some distance. Modern industrial structures coexist with more traditional physical processes in vast tracts of the economy where scales of production are very different ranging from tiny household enterprises to micro, small, medium and large industries. Mobile devices, smart sensors and location detection technologies like geotagging are gaining traction. Big data analytics, customer profiling, augmented

reality are certainly the future of the industry but a wholesale migration to them as a source for capturing national industrial output is still problematic, though more and more forays are needed in that direction in the coming years.

1.4. In the above backdrop, the Technical Advisory Committee for the base year revision of the all-India Index of Industrial Production, henceforth, TAC-IIP, while making its recommendation is charting out a course where it does not merely provide a base year change for IIP but over the medium-term lays the ground for information leap that provides quicker, more granular and yet more accurate information on industrial output that is also more resilient to dynamically evolving industrial structures. To enable this, while making many of its recommendations for immediate implementation is also making many recommendations for implementation in a multi-year framework over a medium term.

1.5. As economies advance, industry loses it share in gross value added (GVA). In fact, in some countries services sector account for 80% or more of the aggregate output. However, industry with its backwards and forward links remains important driver of overall economic activity. So, getting timely and right information on industrial activity is of paramount importance. IIP data provides a vital input to Ministry of Finance and the Reserve Bank of India which use it extensively for policy formulation. Businesses track IIP for industrial planning. Financial sector analysts have their own analytical requirements. IIP is a crucial input for compilation of quarterly GVA and its comparability over periods remains an important consideration, even while improvements are necessary in alignment with internationally recommended practices.

History of all India IIP

1.6. In India, the first official attempt to compute the IIP was made much earlier than the first recommendation on the subject which came at the international level in 1950. India released its first IIP with base year 1937 in the pre-independence era. The IIP was at that stage compiled covering a limited set of industries. Over the subsequent base years of all India IIP, viz. 1946, 1951, 1956, 1960, 1970, 1980–81, 1993–94, 2004–05, and 2011–12, the scope, coverage, classification framework, and the methodology for the index has been progressively refined and expanded to reflect the structural transformations of the Indian industrial sector and the improvements in statistical practices.

Recommendations on IIP made by different Committees

1.7. **Recommendations of Dr. C. Rangarajan Commission:** To address the country's growing statistical requirements, the Government of India constituted the National Statistical Commission on 19 January 2000 under the chairmanship of Dr. C. Rangarajan, then Governor of Andhra Pradesh. During its deliberations, the Commission undertook a comprehensive review of the IIP, examining key aspects such as the base year, scope, item coverage, weighting diagram, sources of data, and procedures for quick estimates and revisions.

1.8. The Commission made a set of recommendations grouped by areas of action, focusing primarily on improvements in the existing IIP and the strengthening of source agencies. It recommended that the IIP item basket be designed to adequately represent industrial growth at least at the 2-Digit level of the

National Industrial Classification (NIC). The Commission further recommended that the IIP base year be revised every five years to reflect structural changes in the industrial sector.

1.9. In addition, the Commission emphasized the need to strengthen the statistical infrastructure of source agencies, particularly through restructuring the statistical set up in Department for Industrial Promotion and Policy (DIPP), presently Department for Promotion of Industries and Internal Trade (DPIIT), by creating a dedicated statistical unit under professional guidance. It envisaged, that this unit would be responsible for maintaining the reporting frame, ensuring timely and adequate response in monthly production data, addressing non-response through appropriate methodologies, and improving overall data quality.

1.10. The Commission also advised limiting the inclusion of items with very few reporting units to avoid extreme volatility, while calling for closer monitoring where such inclusion is unavoidable.

1.11. **Recommendations of Dr. N. S. Sastry Statistical Audit Report:** A statistical audit on the all India IIP was conducted by the National Statistical Commission (NSC) as a test case before laying down a comprehensive methodology for the purpose. Dr. N. S. Sastry, former Director General of National Sample Survey Organization (NSSO) [erstwhile, presently NSS], led this audit. Focused on the all India IIP (base year 1993-94), the audit's terms included examining planning processes, action plans, weighting diagrams, item basket selection, and computation criteria. The audit encompassed an evaluation of data collection, processing, and dissemination mechanisms of IIP. The comprehensive report, along with a framework for future statistical audits, was submitted in May 2011.

1.12. Dr. Sastry in his report made a comprehensive set of recommendations aimed at improving the existing IIP and strengthening source agencies. He recommended that the IIP item basket be selected to ensure representativeness of industrial growth at least at the 2-Digit level of NIC. The source agencies advised to expand their databases to include additional items, new units, and fast-moving products. Regularly sharing of data on items that lie just below the selection threshold with the source agencies was recommended to support data availability for new items. New/ emerging items were also to be identified from the detailed Annual Survey of Industries results. Quinquennial revision of the base year for IIP was recommended to reflect structural changes in the industrial sector.

1.13. **Recommendations of Working Group for development of methodology for compilation of All India IIP with base year 2011-12:** The revision of the base year of IIP from 2004-05 to 2011-12 was done under the aegis of a Working Group under the Chairpersonship of Dr Saumitra Chaudhuri, Member, erstwhile Planning Commission and comprising of experts from stakeholder ministries, organizations, and members of the academia. The Working Group emphasized the need to align the IIP with prevailing industrial trends to ensure its continued relevance for evidence-based policy formulation and economic analysis. It also underscored the importance of harmonising the methodology and compilation practices of the IIP with the International Recommendations for the Index of Industrial Production (IRIIP), 2010, so as to strengthen its conceptual consistency and international comparability.

1.14. The present IIP with base year 2011-12 is compiled as per the recommendations of this Working Group. The scope, coverage, methodology and conceptual guidelines for the present series of IIP were enumerated by the Working Group.

Constitution of the TAC-IIP

1.15. As well-over a decade had elapsed after the introduction of the 2011-12 IIP, MoSPI recognised the need for a re-look at the IIP with a view to revise its base year to better capture the changing industrial structure. It also aimed to improve the conceptual and technical basis by considering changes in data flows and improvements in statistical methodologies as part of a larger exercise to bring forward the base years of most macroeconomic time series. On these considerations, MoSPI through its Office Memorandum (OM) dated 27th September 2024 constituted the Technical Advisory Committee for Base Year Revision of All-India Index of Industrial Production (TAC-IIP) under the chairmanship of Dr. Mridul K. Saggar, Professor, IIM Kozhikode. The composition of the Committee may be seen in **Annexure I** that provides the OM.

CHAPTER II

CHOICE OF BASE YEAR FOR IIP

This chapter discusses the conceptual basis and criteria for selecting an appropriate base year for the IIP. It reviews the present base year of the IIP and highlights the limitations and challenges associated with an outdated base. The chapter also examines international best practices and recommendations on base year selection for IIP, emphasizing the need for consistency with the base years of other key macroeconomic indicators. Finally, it outlines the deliberations of the TAC- IIP and presents its recommendations on the choice of a new base year.

Base Period

2.1. Base period, generally considered as a base year, is a reference period at a point in time for comparison with other periods. The period is specific, chosen to usually capture "normal" or stable period where data is not distorted by any significant shock. Data changes are compared with the levels prevailing in the base period, like GDP in real or nominal terms, or in terms of an index by setting the base period index value to 100 to compare economic data like prices (CPI), or industrial production (IIP). It is generally used as a benchmark for measuring financial or economic data, allowing subsequent values to reflect relative increases or decreases over time. All subsequent data points are calculated relative to the base period so that comparisons are made on an "apples-to-apples" basis. Base periods/ years are rebased from time to time, with such updations helping to keep data relevant because production, consumption or economic structures change over time

Current Base Year of IIP

2.2. The current series of all India IIP, is with a base year 2011–12 as per the recommendations of the Working Group for Development of Methodology for Compilation of All India IIP. The Group had initially veered around to revising the base year from 2004-05 to 2009-10 with product selection drawn from the ASI for that year, but as the new base for National Accounts was chosen as 2011-12 following the completion of 68th Round of NSS, it went ahead with selection of 2011–12 as the base year for consistency with National Accounts though *ab initio* the commodity basket was drawn from 2009-10 ASI and it was decided to recompute the weighting diagram subsequently when later ASI data became available.

2.3. Although the base year 2011–12 was appropriate at the time of its adoption as it was a normal year, the industrial sector has since undergone significant structural transformation driven by technological advancements, digitalization, supply chain reorganization and integration, ongoing energy transition with expansion of renewable energy, and other evolving production patterns. Continued reliance on an older base year may therefore limit the index's ability to accurately reflect the contemporary industrial landscape. Emerging industries and new products may remain

underrepresented, while declining sectors may retain outdated weights, leading to distortions in measurement and reduced representativeness of the item basket.

International Recommendations on Base Year Selection

2.4. The International Recommendations for the Index of Industrial Production (IRIIP 2010) suggests quinquennial revision of the base year and provides detailed guidance on the selection of the base year, particularly the weight reference period used for deriving the index. According to IRIIP, the base year should represent a normal and stable economic period, free from abnormal shocks or distortions, so that the weighting structure reflects typical industrial conditions. Changed classifications and weighting should suitably integrate new industries. It should also be reasonably recent, as the use of an outdated weight reference period may reduce representativeness and introduce bias in measuring industrial growth.

Alignment of the IIP Base Year with other Macroeconomic Indicators

2.5. Ensuring consistency of the base year of the all-India IIP with the base years of other key macroeconomic indicators is essential for maintaining coherence within the national statistical system. The IIP serves as a high frequency indicator of industrial performance and is widely used for short term economic analysis, forecasting, and policy formulation. Therefore, its comparability with broader aggregates such as Gross Domestic Product, Wholesale Price Index, and other related economic indicators is of critical importance.

2.6. Alignment of base years across macroeconomic statistics facilitates meaningful comparison between real growth estimates derived from different sources. For instance, consistency between the base year of the IIP and that of GDP ensures that sectoral weights, industrial classifications, and structural benchmarks are broadly synchronized, reducing discrepancies in growth interpretation. It also enhances analytical clarity when comparing trends in industrial output with corresponding movements in value added and price indices.

2.7. Accordingly, periodic revision of the IIP base year in alignment with revisions undertaken in national accounts and related indices promotes statistical harmonization, improves interpretability of macroeconomic data, and strengthens the credibility and reliability of official statistics.

Deliberations and Recommendation on Base Year for new series of IIP

2.8. TAC took up the matter of revision of base year for IIP as a year that meets both the recency and normal year criteria. Availability of latest Annual Survey of Industry (ASI) data is a major requirement for deciding the base year of the new series, which at the time of commencement of revision exercise was ASI 2022-23.

2.9. In the meantime, MoSPI had undertaken Household Consumer Expenditure Surveys (HCES) during two consecutive years, viz., 2022-23 and 2023-24. The results of these surveys were critical for the base year revisions of the National Accounts Statistics (NAS) and the Consumer Price Index (CPI). Based on the results of these surveys, the base year for the NAS was decided to be 2022-23. The base

year for Wholesale Price Indices (WPI), another input in the compilation of IIP, was also decided to be 2022-23.

2.10. The proposed base year revision also seeks to ensure coherence and consistency within the broader macroeconomic framework. As the base year revisions are simultaneously being undertaken for other key indicators such as Gross Domestic Product, Consumer Price Index, and Wholesale Price Index, aligning the IIP base year with these series would promote comparability across macroeconomic aggregates. The base year for the proposed new Producer Price Index (PPI), which could also be a critical input in the compilation of IIP, has also been recommended to be 2022-23.

2.11. Furthermore, the TAC-IIP noted that the ToR of the Committee was to align the base year of the IIP with that of other macroeconomic indicators. On all these considerations, the TAC unanimously endorsed the view that the new base for the IIP should be 2022-23. This will ensure broader harmonization and reduce methodological discrepancies, thus improving interpretability of growth trends, and strengthen the analytical utility of high frequency industrial data for policy formulation and economic assessment. Moreover, the year 2022–23 has been considered suitable as it broadly reflects normal economic conditions and is relatively free from abnormal economic fluctuations or major structural disruptions.

2.12. **After detailed and iterative deliberations which took into consideration all the above, the TAC-IIP recommended revising the base year of the all-India Index of Industrial Production from 2011–12 to 2022–23.**

CHAPTER III

CONCEPTUAL FRAMEWORK

This chapter examines expanding scope and coverage of IIP particularly in the mining and quarrying sector, electricity & gas supply sector and water supply, sewerage and waste management sector, and their potential data sources. It also outlines the framework for classification of industries and products adopted for the Index of Industrial Production on the basis of the latest versions of the classifications, like the NIC 2025. This chapter also explains the concept and role of price deflators in converting value-based production data into volume measures for the IIP and discusses the current status and availability of Wholesale Price Index and Producer Price Index in India.

SCOPE AND COVERAGE OF THE IIP

3.1. In view of the rapidly transforming industrial structure in the economy, industrial statistics, especially its indexation, need to be revisited from time to time. The IIP must reasonably reflect the current structure of the industry. A high rate of obsolescence can make this difficult if the base is old and the coverage of industries in the index was set several years back. In recent years, technology shifts have gathered pace with infusion of digital technologies, artificial intelligence and machine learning, sustainable product lines, advanced robotics and automation. Even many MSMEs are adopting smart technologies with greater operational automation, use of cloud, vernacular platforms, business-in-a box platforms, digital twins and 3D printing technologies. With the accompanying creative destruction, industry production lines often exhibit substantial changes. Operationally, it means that while revising the base year for the IIP in every five years, one must also revise the coverage of IIP across factories and industry components and try to capture new product lines by adding items and factories while filtering out discarded production lines, abandoned and derelict factories. Amid rapid growth and product diversification, this would involve expanding the coverage of the Index.

3.2. The System of National Accounts (SNA) 2025 defines production as "*Activity carried out under the responsibility, control and management of an institutional unit, that uses inputs of labour, capital and goods and services to produce outputs of goods and services.*" The above definition of production covers all sectors of the economy. However, it is commonly accepted that industrial production refers to production having a more narrowly defined scope.

3.3. In this context, industrial output or the index to capture it is limited to the production of non-agricultural commodities production while also excluding construction output. The tradition of excluding construction stemmed from its output being project-based instead of being factory-based. Its site-specific nature, higher labour intensity, larger services component, long gestation gaps and often less controlled processes that are more susceptible to weather disruptions may have prompted the segregation of construction from industry.

3.4. While taking cognizance of the diverse interpretations of the term 'industry', the TAC-IIP decided that the full spectrum of the industrial activity to be covered by the IIP must, in principle, be consistent with international statistical practices. Therefore, one must adopt the industry definition for the IIP which is consistent with the International Recommendations for Industrial Statistics (IRIS) 2008. IRIS defines industry as including sections B (Mining and quarrying), C (Manufacturing), D (Electricity, gas, steam and air conditioning supply) and E (Water supply; sewerage, waste management and remediation activities) of ISIC rev.4. The IRIIP 2010 also accepts the definition of industrial activity as enumerated by the IRIS 2008.

Scope and Coverage of IIP in 2011-12 series

3.5. The Coverage of the IIP, in the 2011-12 series, as decided by the Working Group for Development of Methodology Compilation of IIP was also broadly consistent with the IRIS 2008 as it included the sections B (Mining and quarrying), C (Manufacturing) and D (Electricity, gas, steam and air conditioning supply) and was based on ISIC Revision 4 (NIC 2008) subject to some data availability constraints.

3.6. Considering the data availability with the Indian Bureau of Mines (IBM). the mining sector, i.e., section B (Mining and quarrying) of ISIC Revision 4, in the 2011-12 series of IIP covered the fuel minerals and the Minerals Conservation and Development Rules (MCDR) minerals only. The minor minerals, although having significant economic value, were kept out of the purview of IIP with base year 2011-12 since the data for these minerals were not maintained by the IBM and there were considerable challenges in sourcing their data from the State Governments who are the custodians of this data.

3.7. The manufacturing sector, i.e., Section C (Manufacture) of ISIC Revision 4, was covered in its entirety except for Division 33 (Repair and installation of machinery and equipment).

3.8. The electricity sector, i.e., section D (Electricity, gas, steam and air conditioning supply), in the IIP with base year 2011-12 was represented by only the generation of electricity. The distribution of electricity, production and distribution of gas, and production and distribution of steam and air conditioning were left out of the coverage of IIP.

Expanding Coverage of IIP in the 2022-23 series

3.9. The TAC-IIP considered several steps for expanding and better covering the contemporary industrial structure in the new series with 2022-23 as the base year. These include incorporation of minor minerals and critical minerals in the mining and quarrying output, better measuring output in the manufacturing sector in several ways including dropping and adding items covered, inclusion of gas supply in Section D and the entire Section E (water supply; sewerage, waste management and remediation activities).

Section B – Mining and Quarrying

3.10. The inclusion of minor minerals in the mineral index for the IIP with base year 2022–23 emerged as a major challenge for the TAC-IIP. Minor minerals, as per Section 3 (e) of the Mines and

Minerals (Development and Regulation) Act, 1957, as amended till date, include building stones, gravel, ordinary clay, ordinary sand other than sand used for prescribed purposes, and any other mineral which the Central Government may, by notification in the Official Gazette, declare to be a minor mineral. In 2025, following the approval of the National Critical Mineral Mission by the Union Cabinet, some materials (e.g., Barytes, Felspar, Mica, and Quartz) have been reclassified from minor to major minerals considering their importance in high-tech industries.

3.11. Minor minerals play a crucial role in supporting infrastructure development and the construction sector. Given their substantial contribution to economic activity, particularly in a rapidly urbanizing economy, excluding these minerals would result in an incomplete and potentially misleading assessment of industrial performance.

3.12. Despite the importance of minor minerals, incorporating them into the IIP framework presents several conceptual and practical difficulties. Unlike major minerals, whose production is typically recorded through organized mining operations with established reporting systems, minor minerals are often extracted in a highly decentralized and fragmented manner. For example, sand used in construction work is substantial in volume and value but such data is not maintained in statistically structured manner. A significant portion of their production occurs through small-scale, local operators. This creates serious challenges in obtaining reliable, timely, and consistent data on output.

3.13. Another key issue relates to the lack of standardized measurement practices. Production of minor minerals is often recorded in varying units across states, and in some cases, data are maintained primarily for regulatory or revenue purposes rather than for statistical consistency. This makes it difficult to construct a uniform volume index, which is essential for inclusion in the IIP.

3.14. In addition, the growing strategic and economic importance of rare earth minerals further strengthens the case for expanding the mineral index. Rare earth minerals are a group of 17 metallic elements (15 lanthanides plus scandium and yttrium) extracted generally from bastnasite, monazite, and loparite and the lateritic ion-adsorption (IADs) clays. They are crucial for high-tech applications, especially renewable energy systems including wind turbines, electric vehicle motors, consumer electronics, and defence equipment such as stealth fighters and bombers, night vision goggles, laser equipment, precision guided missiles, AESA radars, etc.

3.15. Despite being relatively abundant in the earth’s crust, they are rarely found in high concentration. India is estimated to hold the world's third-largest reserves of rare earth elements (REE) and has put in place a Rare Earth Strategy with clear investment and production plans, including for setting up of dedicated Rare Earth Corridors in Andhra Pradesh, Kerala, Odisha and Tamil Nadu for mining, processing, research, and manufacturing of Rare Earth Permanent Magnets (REPMs) with an estimated integrated REPM capacity of 6000 MTPA. The TAC-IIP, noted that pilot production of REPM in India had already begun and its commercial production is expected to start by the end of 2026.

3.16. Therefore, the TAC-IIP took the view, that even though currently critical mineral production was quite small and largely in form of Monazite processed by Indian Rare Earths Limited (IREL), it is

important to expand the IIP coverage to include the rare earth minerals production with its weight based on current output. If production of some critical minerals jump starts or gathers pace exponentially, the methodological changes to introduce chain-based IIP and to some extent augmentation of factories that may be carried in rare cases would be able to better capture growing production of critical minerals.

3.17. There are other institutional challenges that remain in the coverage of mining and quarrying. The administration and regulation of minor minerals largely fall under the jurisdiction of State Governments, leading to differences in data collection systems and reporting frequency. In contrast, rare earth minerals are governed by the Department of Atomic Energy (DAE) due to their strategic importance, creating a dual governance structure. The Committee noted that integrating these diverse data sources into a cohesive national framework requires strong coordination between central and state authorities, as well as the establishment of standardized reporting protocols and urged the Government of India to initiate efforts in this direction.

Section C – Manufacturing

3.18. The manufacturing sector of all-India IIP covers the entire Section C (Manufacturing), but for the exclusion of Division 33 (Repair and Installation of Machinery and Equipment). However, its contribution in the Gross Value Added of Manufacturing sector is only about 0.21% as per ASI 2022-23. The primary constraint for measuring this Division lies in the fact that unlike other manufacturing divisions where production can be expressed in physical quantities, activities under Division 33 are predominantly service-oriented. Their output is typically recorded in terms of value of services rendered, labour input, or contracts executed, rather than tangible goods, making it challenging to construct a reliable quantity-based index. It may be pertinent to mention that the U.S. Census Bureau, in contravention of the ISIC, traditionally classifies these activities as “other services” (NAICS 81) rather than manufacturing.

3.19. For measuring these activities, the IRIIP, 2010 suggests using one of the following variables:

- Number of hours worked adjusted for changes in productivity (Preferred method);
- Value of output deflated by appropriate quality-adjusted PPI (Alternate method); and
- Number of persons employed adjusted for changes in productivity (Other method)

3.20. The TAC-IIP had to evaluate feasibility of adopting these recommended measures. *Prima facie*, it felt that India has a large workforce employed in repair and installation of machinery and equipment, but primarily in the unorganised sector. However, assessing its value added whether based on reliable and timely data on hours worked, employment, or value of output after consistently collecting data across reporting units is not possible at the current juncture. At the same time, the growing importance of maintenance, repair, and installation services in a modern industrial economy cannot be overlooked. As industries become more technology-intensive and capital-heavy, the demand for such services has increased significantly, making Division 33 an integral component of the industrial ecosystem.

3.21. The TAC-IIP, therefore, suggested that MoSPI should initiate collection of data on the hours worked and average productivity in this sector, by exploring options such as extracting unit level data from ASI to capture Division 33 activity. Alternatively, one could use PLFS to track number of persons and their work hours in repairs and installation. However, meaningful statistics for Division 33 require developing reliable metrics on the value of repairs, maintenance expenditures, number of employees, and capital expenditures, and then multiplying it with productivity estimates. These metrics along with productivity changes in the sector may then be used for developing indices for Division 33. Further, the Committee also noted the absence of Price Deflators relevant to this sector. The Committee was, thus, of the view that at the current juncture such metrics are unavailable, and considerable groundwork is needed on this, before it can be incorporated in IIP.

Section D – Electricity, gas, steam and air conditioning supply

3.22. As per the recommendations of IRIIP 2010, the scope of the Index of Industrial Production (IIP) extends to Section D of ISIC Revision 4, which encompasses not only the generation, transmission, and distribution of electricity, but also the manufacture and distribution of gaseous fuels, as well as steam and air conditioning supply.

3.23. In the 2011–12 series of the IIP, the coverage of this sector remained partial. While electricity generation, both from Non-renewable and renewable sources, was included and continues to form a key component of the index, the other activities within this section—namely the manufacture and distribution of gaseous fuels and the supply of steam and air conditioning—were not incorporated.

3.24. While the manufacture of gases produced from fossil fuels are covered in Section C (Manufacturing: 2-Digit – 19) of ISIC Revision 4 (NIC 2008), the distribution for these gases is to be covered in Section D. This section also covers manufacture and distribution of non-fossil fuel based gaseous fuels like, biogas, syngas, etc. Given the growing use of these gases in industries and households and a focus on green energy alternatives, their inclusion in IIP would enhance the relevance and comprehensiveness of the index.

3.25. The production and supply of steam and air conditioning, however, do not constitute a significant activity in the Indian context.

3.26. TAC-IIP noted that the coverage of Section-D in IIP was restricted to non-captive electricity generation only and efforts were needed to develop systems of data flows so that it can be more comprehensively captured. Captive power generation has not been part of electricity generation, and it will not be possible to capture it in the new series of IIP as well in the absence of data flow. Transmission and Distribution (T&D) data is also not available as of now. However, considering the fact that electricity as a product cannot be stored, the generation and transmission/ distribution trajectory would be similar.

3.27. Similarly, gaseous fuels are not represented in current series of IIP. However, Ministry of Petroleum and Natural Gas (MoPNG) has data on supply of Piped Natural Gas (PNG), which makes it

suitable to inclusion in the new IIP series. The TAC-IIP accordingly recommends the inclusion of supply of Piped Natural Gas (PNG) in IIP 2022-23 series.

3.28. The TAC-IIP also felt that MoSPI can try dissemination of more granular electricity generation data by type of electricity, so that its progress on renewable energy can be tracked by types of clean fuels. This will be a matter of great interest for public policy, investors in green finance and researchers working in the area of energy and environment.

Section E – Water supply; sewerage, waste management and remediation activities

3.29. One of the important missing parts of the IIP in India is that it measures industrial production by adding mining, manufacturing, and electricity but does not capture water supply and sanitation activities, whereas the IRIIP, 2010 recommends the inclusion of Section E (Water supply; sewerage, waste management and remediation activities) in the compilation of IIP. The preferred indicator for water supply according to IRIIP, 2010 is the quantity of water collected, treated or supplied, measured by volume. However, the data available for this sector pertains to the number of water connections in rural and urban areas. While the number of connections is an alternative method for measuring this sector for the purpose of IIP according to IRIIP, 2010, it is only a proxy to the volume of water supplied.

3.30. Similarly, for sewerage, the number of sewerage / septage connections, for which data is available, is also an alternative variable according to IRIIP, 2010 and is a proxy to the preferred variable, which is the volume of sewerage collected and treated. However, data is available for the volume of waste collected and treated and the same can be used as a variable for measuring the sector.

3.31. Accordingly, the TAC-IIP recommends that data on water connection, Sewerage/septage connections (reported in 500 AMRUT cities) and volume of waste collected and treated as available with the Ministry of Housing & Urban Affairs and Department of Drinking Water & Sanitation may be used to capture this sector in the new series of IIP.

Summary of the Deliberations and Recommendations of TAC-IIP

3.32. To summarise, **the recommendations of the Committee are:**

i. **Mining & Quarrying Sector: Rare Earth and minor minerals may be included**

ii. **Manufacturing Sector: Division 33 (Repair and Installation of Machinery and Equipment) may be kept out of the scope of the All India IIP in the new series. Its inclusion 'may be explored in the unorganized sector Index.**

iii. **Electricity and Gas supply: Generation of electricity and distribution of Gaseous fuels may be included in the new series of IIP. However, captive electricity generation and production of non-fossils gaseous fuels remain outside the scope of the Index. The generation of electricity by Non-renewable and Renewable sources may be disseminated separately.**

iv. **Water supply; sewerage, waste management and remediation activities: Number of tap connection in rural and urban areas may be considered as the variable for tracking the water supply sub sector. Similarly, for Sewerage sub sector, the number of Sewerage/septage connections (reported in 500 AMRUT cities) may be considered as the variable. For waste management, waste collected and processed in urban areas may be taken as the variable.**

CLASSIFICATION OF INDUSTRIES AND PRODUCTS

3.33. In the context of calculating the IIP, it is important to classify both economic activities (industries) and products in a clear and systematic manner. These classifications help in organizing information reported by different units on what they produce and what inputs they use. By grouping similar activities and products together, the data becomes more consistent and easier to compile and interpret. This, in turn, improves comparability of the statistics over time and across regions, and supports meaningful analysis of relationships and trends across different industries.

3.34. As per international guidelines, the IRIIP 2010 recommends using the International Standard Industrial Classification (ISIC) for classifying industries in the IIP, and the Central Product Classification (CPC) for classifying products. These classifications are maintained by the United Nations Statistical Division (UNSD) and are periodically updated to reflect new and emerging forms of production. The United Nations Statistical Commission (UNSC) endorsed the ISIC, Revision 5 in 2023. The CPC Version 3.0 was similarly endorsed by UNSC in 2024 aligning it with Harmonized System (HS 2022) and the ISIC, Rev 5.

3.35. In India, similar standardized systems are used to organize data on industries and products. Economic activities are classified under the National Industrial Classification (NIC), while goods are covered under the National Product Classification for Manufacturing Sector (NPCMS). These classifications are based on international frameworks— ISIC for industries and CPC for products—but are adapted to suit specific Indian requirements. The latest version of NIC, released in November 2025, is the NIC 2025, which aligns with ISIC Revision 5. However, for products, the country continues to use NPCMS 2011 (Revised 2015), which is based on CPC Version 2.0.

3.36. It is important to note that the ASI 2022-23 had used NIC 2008 for classification of industries and NPCMS 2011 for classification of products. The TAC-IIP noted that MoSPI had officially released NIC 2025 and considered that though the item basket and weights for the new series of IIP was drawn using the NIC 2008 due to its use in ASI 2022-23, the IIP for the new series may be released as per the NIC 2025 using the concordance between the two classifications. Continuation of the use-based classification system was also proposed for the new series of IIP. The TAC-IIP noted that the implementation of NIC 2025 (taking cognisance of ISIC, Rev. 5) for IIP will enable significant updates to the industrial sectors – mining & quarrying, manufacturing, electricity, gas, and water supply,

sewerage & waste management, when compared with Rev. 4, as it focuses on digitalization, sustainability, green energy, and granular updates to reflect modern industrial processes.

3.37. The TAC-IIP also suggested that the product classification could be revisited at the time of future base revision once the NPCMS 2011 is revised to implement CPC 3.0.

3.38. For the purpose of implementing NIC 2025 for compilation and dissemination of IIP, a concordance at the NIC 4-Digit level should be enough. After selecting the item basket and drawing the weights as per NIC 2008, the items and activities may be arranged as per the NIC 2025 classification.

3.39. The **TAC-IIP, accordingly, recommends that the concordance between NIC 2008 and NIC 2025 may be used for compilation and disseminating all-India IIP as per NIC 2025.** ESD, MoSPI, who is also the custodian of the economic classifications used in India, may work towards establishing a concordance at the lowest level of disaggregation.

Use Based Classifications

3.40. The Use Based Classification (UBC), that is an unparalleled hallmark of the IIP in India, serves as an important analytical tool by grouping industries and products according to their end use rather than their technical or industrial characteristics. This classification provides a demand-oriented view of industrial production, complementing the industry-wise analysis that meaningfully aids macroeconomic policymaking in the country.

3.41. The use-based categories help in understanding the underlying drivers of industrial growth and makes the IIP more relevant for macroeconomic analysis and policy formulation. These categories are also useful for short-term economic monitoring and it gives an insight as to whether the growth is being driven by consumption, investment, or infrastructure development.

3.42. In the IIP series with base year 2011-12, there are six use-based categories into which the item groups in the item basket were classified. They are Primary Goods, Capital Goods, Intermediate Goods, Infrastructure and Construction Goods, Consumer Durable Goods and Consumer Non-Durable Goods. The categories were defined as under:

i) Primary Goods: Such goods which are directly obtained from natural sources and used for further processing and consumption in manufacturing and power-generating activities. E.g.: Ores and Minerals (incl. concentrates); Fuels (Diesel, Aviation Turbine Fuel, Petrol, LPG, etc.) and Electricity. The category informs on the sourcing part of the supply chains.

ii) Capital Goods: These include manufactured goods, other than intermediate goods, which are used in the production of other goods or services (but not as inputs). Typically, capital goods are tangible assets which are then used for the means of production, e.g. plant and machinery. Plants, machinery and goods are used for further investments. E.g.: Boilers, Air & Gas Compressors, Tractors, Transformers,

Commercial Vehicles and all machineries like Textile Machinery etc. The category is immensely useful in understanding the capital expenditure (capex) cycles.

iii) Intermediate goods: Any good/ product produced as incomplete product (not for final consumption) or which goes as input in production for further finishing or forming a part of a product are classified as Intermediate Goods. E.g.: Cotton yarn, Plywood, Steel Tubes/ Pipes, Fasteners, Parts of automobiles, etc. Intermediate goods are essential building blocks in supply chains that are critical for boosting production efficiency and cost competitiveness of final product that materially affects foreign trade and Global Value Chains (GVCs).

iv) Infrastructure/ Construction Goods: Finished goods which are primarily used in infrastructure industry or construction industry as an input are classified under Infrastructure/ Construction Goods. This category was created to precisely categorize items which could not be classified under Consumer durables or Intermediate goods. E.g.: paints, cement, cables, bricks and tiles, rail materials, etc. These goods ensure efficient, safe, cost-effective trades and have pronounced impact on comparative advantage in international trade.

v) Consumer Durable Goods: Products directly used by consumers and having a significant life span (typically more than one year) were classified as Consumer Durable Goods. E.g.: Pressure Cooker, Air Conditioners, Tyres, Telephone and Mobile Instruments, TV Sets, Passenger Cars, Two-Wheelers (Motorcycles/ Scooters), Jewellery of Gold, etc. Consumer durables are a key indicator of consumer and business confidence and drive an important part of aggregate demand.

vi) Consumer Non-Durable Goods: Consumer Non-Durable Goods will be the ones that are for the immediate use of the consumer and cannot be preserved for long periods. E.g.: Edible Oils, Milk, Milk Powder, Wheat Flour, Rice, Biscuits/ Cookies, Sugar, Tea, Coffee, Medicines, etc. Such goods create a stable, continuous, and high-volume flow of consumer spending that drives GDP. A large part of this demand is non-discretionary and keeps the economy going regardless of economic cycles.

3.43. The above definitions of use-based categories were reviewed in detail by the TAC-IIP.

3.44. **TAC-IIP recommends that the Use-Based Classification used in the IIP with base year 2011-12 will continue to be used in new series of IIP with base year 2022-23. The categories would be defined as per the definitions given in para 3.41 above.**

3.45. The TAC-IIP, however, reviewed individual items classifications under used-based classification in great detail and recommended adoption of item wise used base categories. as enumerated in **Annexure III**.

PRICE DEFLATORS

3.46. IIP is a short-term volume indicator for industrial production, developed to overcome the information gap arising from lack of quick information on value added basis. As explained in the preceding chapter, gross output measures such as value of production or turnover data are commonly used in IIP as a measure of the short-term changes in value added over a given reference period. A volume estimate of value added is then obtained from a current price value through a process of price deflation. For this, calculation of price deflators assumes importance. A price deflator is an index used to remove the effect of price changes from value-based data in order to obtain estimates in real (constant prices) terms. In compilation of the Index of Industrial Production (IIP), a price deflator is applied where production data is reported in monetary value rather than in physical quantities.

3.47. The deflation process involves converting current price values into volume estimates by dividing them by an appropriate price index. This ensures that the IIP reflects changes in the volume of production, independent of price fluctuations. The choice of an appropriate price deflator is, therefore, crucial for ensuring accuracy, consistency, and comparability in industrial production statistics, particularly when value-based reporting is prevalent across industries.

International Recommendations on Price Deflators

3.48. The *International Recommendations for the Index of Industrial Production (IRIIP), 2010* recommend the use of the Producer Price Index (PPI) as the preferred deflator for converting value-based output data into volume measures, since the PPI directly measures product prices from the producer (both input and output product prices of the production process) and usually takes quality changes into account.

3.49. The IRIIP, 2010 further emphasizes that the detailed PPI used for deflation should be defined as closely as possible, in terms of scope, valuation basis, and timing, to the respective product groups for which it is being applied. The deflator should be used at the lowest feasible level of aggregation, but not higher than the ISIC class (4-digit) level. The quality, coverage, and appropriate application of the PPI are of critical importance, as inaccuracies or mismatches in price indices can directly affect the reliability and overall quality of the IIP.

3.50. In the absence of a PPI, alternative indices such as suitably adjusted Consumer Price Index (CPI) may be used or alternatively Export Price Index (EPI) may be used where a product or group of products are primarily produced for exports. However, these are ordinarily considered second-best options due to conceptual limitations. The IRIIP, 2010 says that the CPI to be used for deflation of output values are to be adjusted for changes in taxes and trade and transport margins. Obtaining export prices has its own set of limitations as trade wedges and inventories impact them.

3.51. In practical terms, an adjusted CPI that removes the effects of taxes, trade, and transport margins approximates the conceptual framework of a Wholesale Price Index (WPI). In the absence of PPI in India, the WPI, which measures price changes for goods at the bulk/ wholesale level is, therefore, considered more closely aligned with the requirements of IIP deflation.

WPI vs PPI: Conceptual Clarification

3.52. The producer's price is defined as the amount receivable by the producer from the purchaser for one unit of a good or service produced as output, minus any Value Added Tax (VAT) or similar deductible taxes invoiced to the purchaser. It also excludes transport charges that are separately invoiced by the producer. In this sense, producer prices reflect the ex-factory or basic price of output, capturing the value of production at the point it leaves the producer.

3.53. The Producer Price Index (PPI) measures the average change over time in these producer prices. It tracks price movements at the first point of commercial transaction and is designed to reflect price changes faced by producers, net of indirect taxes and margins. Because of this conceptual alignment with production valuation at basic prices, the PPI is internationally recommended as the appropriate deflator for converting current price output data into volume measures for the Index of Industrial Production (IIP).

3.54. Wholesale price is generally defined to capture changes in prices of all bulk transactions of goods carried out in the domestic market. The universe of WPI, therefore, comprises all possible transactions at first point of bulk sale in the domestic market. The Wholesale Price Index captures price changes at the factory gate or wholesale level and excludes indirect taxes, trade discounts, and transport charges. In the Indian context, the current All-India Wholesale Price Index (WPI) with base 2011–12 does not include indirect taxes in its price measurement. As a result, the WPI, in its present form, is conceptually closer to the Producer Price Index, as it reflects basic producer prices rather than final transaction prices inclusive of taxes.

3.55. However, despite these similarities, the WPI and PPI are not identical in scope and construction. The PPI is specifically designed to measure producer-level output prices across industries in a manner fully consistent with national accounts valuation principles, whereas the WPI has historically been structured as a broader wholesale price measure.

Availability of Producer Price Index and Choice of Appropriate Deflator

3.56. The availability of a comprehensive and regularly updated PPI is a key consideration in the compilation of the IIP, particularly for the purpose of deflating value-based production data into volume measures.

3.57. In the Indian context, however, a fully operational and comprehensive Output PPI covering all industrial sectors at the required level of disaggregation is yet to be available for regular use in IIP compilation. Conceptual work and exercises on PPI development have been undertaken, and its availability as a deflator for the IIP is expected very soon. Till the availability of the PPI, alternative indices, most notably the WPI, continues to be used for deflation purposes in the current framework.

Appropriate Index for Deflation – Output PPI or Input PPI

3.58. In principle, the appropriate deflator for the IIP is the Output PPI rather than the Input PPI. The IIP measures changes in the volume of industrial output; therefore, the deflator should correspond to the prices received by producers for their output, not the prices paid for inputs used in production.

3.59. An Output PPI measures changes in the selling prices of goods produced by industries and is, therefore, directly aligned with the concept of production at basic prices. It ensures that nominal output values are converted into real output estimates without contamination from input cost variations.

3.60. In contrast, an Input PPI measures changes in the prices of raw materials, intermediate goods, and other inputs purchased by producers. While useful for analyzing cost pressures and inflation transmission, the Input PPI is not appropriate for deflating output values in the IIP, as it does not reflect the price of the produced good itself.

3.61. Accordingly, the TAC-IIP noted that when available, the Output PPI is the conceptually correct deflator for IIP compilation.

Deliberations and Recommendations of TAC-IIP

3.62. The TAC-IIP examined the issue of price deflation for the all-India IIP with base year 2022–23, pending the availability of output PPI. At present, in the 2011–12 series, the WPI is used to deflate items reported in value terms, based on earlier recommendations of the Working Group on IIP Base Year Revision. The Committee reviewed this approach keeping in view international practices, availability of data, and the existing institutional framework in India.

3.63. The TAC-IIP observed that the PPI is internationally regarded as the most appropriate deflator for output data reported in value terms. However, since a comprehensive PPI is not yet available in India, the continued use of the WPI remains a practical and workable solution for the time being.

3.64. It was also noted that the Office of the Economic Adviser (OEA), under the Ministry of Commerce and Industry, is currently developing the PPI with base year 2022–23. At the same time, the base year of the WPI is also being revised from 2011–12 to 2022–23.

3.65. In this context, the **TAC-IIP recommended that the Output PPI should be adopted as the preferred deflator for the new series of IIP with base year 2022–23 once it becomes available. Until then, the WPI may continue to be used as an interim measure.**

3.66. To further improve the accuracy of deflation, the TAC-IIP emphasized the need to align, as far as possible, the item baskets of the PPI/WPI with that of the IIP. This would allow deflation to be carried out at a more detailed level, ensuring that the most appropriate price index is used for each item group.

3.67. Overall, the Committee noted that moving from WPI to PPI would bring the IIP in line with international best practices. In addition, better alignment between the item baskets would make the deflation process more robust by enabling it to be carried out at a finer level of detail.

CHAPTER IV

METHODOLOGICAL FRAMEWORK

This chapter explains the concept and role of the item basket and weights in the compilation of the IIP and reviews the methodology adopted for item selection in the 2011–12 series, especially the treatment of not elsewhere classified (n.e.c.) items. This chapter outlines the methodology for factory selection, drawing of weighting diagram in the 2022-23 series of IIP. It also discusses the methodology to be adopted for compilation of IIP and outlines its dissemination strategy along with the concept and methodology for calculating the linking factor.

SELECTION OF ITEM BASKET AND FACTORIES

Item basket

4.1. Just as a Consumer Price Index tracks retail prices of a basket of goods and services consumed by a consumer, an Index of Production (IoP) computed in most industrialised countries or the Index of Industrial Production (IIP) measures real output in mining, manufacturing and utilities and captures output in the basket of these goods. Most industrialised countries also separately compute the Index of Services Production (ISP).

4.2. The Terms of Reference (ToR) for TAC-IIP was specific and stemmed from the IIP base year revision and, therefore, the item basket for IIP had to track industrial production, while agriculture and services are required to be kept out of its purview.

4.3. The term item/ commodity basket refers to a fixed list of items used specifically to track the changes in prices or volume of production in one period compared to a reference period in an economy or market. In a fixed base approach, an approximate product basket is constructed to represents the productions during the base period under consideration (period *0*), and then the level of production in period *t* relative to period *0* is expressed with the help of the ratio of the period t production of the basket to the period *0* production of the basket. For practical reasons, the basket of commodities is based on surveys conducted for the base period.

4.4. The item basket is designed to capture the diversity of production across sectors and industry groups, thereby ensuring that the index adequately represents key products contributing to industrial growth. As the foundation of the IIP framework, the item basket plays a critical role in accurately capturing movements in industrial production. Given structural shifts in technology, product composition, and industrial organization, periodic review and revision of the basket are essential to maintain its relevance, representativeness, and statistical robustness.

Item Basket in the 2011–12 Series

4.5. In the IIP series with base year 2011–12, the item basket comprises 407 item groups, distributed across the three sectors—Mining, Manufacturing, and Electricity.

Mining Sector (1 item group)

4.6. The Mining sector in the IIP consists of a single item group covering 29 minerals identified by the IBM. The minerals comprise of the fuel minerals and the metallic and non-metallic minerals covered under the Mineral Conservation and Development Rules (MCDR). A composite index for these minerals is compiled by the IBM, representing the aggregate performance of the mining sector. Notably, the minor minerals are not included in the current coverage due to limitations in data availability and reporting mechanisms.

Manufacturing Sector (405 item groups)

4.7. The Manufacturing sector constitutes the largest component of the IIP item basket. This item basket was finalized based on the Annual Survey of Industries (ASI) datasets for 2010–11 and 2011–12 to mitigate the impact of year-on-year production volatility. The "not elsewhere classified" (n.e.c.) items were removed from being considered in the item basket since they do not represent a specific product. Items were then selected in the item basket so as to represent at least 80 percent of the output of the industry groups (NIC 3-Digit).

4.8. The final list of 809 products identified through the methodology detailed above were then clubbed into 405 item groups for operational convenience and to ensure regular flow of data.

Electricity Sector (1 Item Group)

4.9. The Electricity sector in the 2011-12 series continued with the tradition of treating it as a single item group capturing total electricity generation covering available data from both Non-renewable and renewable sources. No decomposition of this sectoral index is, therefore, available at itemized level. Output generated in other public utilities like gas, steam, air conditioning, water supply, sewerage, waste management and remediation activities so far could not be covered in the current IIP series.

Item Basket in the 2022-23 Series of IIP

After detailed deliberations, the TAC-IIP has proposed some important changes in the item basket for the new series of IIP with base year 2022-23. The changes are as under:

Coverage of 'n.e.c.' Items which were excluded in 2011-12 series of IIP

4.10. As mentioned earlier, since the n.e.c. items do not represent a specific product, the items were removed for the selection frame for the item basket in 2011-12 series. The outputs of these items were then distributed proportionately among other items in the industry group.

4.11. However, this treatment has implications for representativeness. By their very nature, n.e.c. categories capture residual, specialized, customized, or diversified products that do not fall within standard classifications. While individually such items may account for modest output shares, collectively they may represent a significant component of industrial activity, particularly in industries characterized by product differentiation, technological advancement, or evolving production processes.

Their exclusion as distinct items may therefore lead to partial underrepresentation of certain niche or innovation-driven segments of manufacturing.

4.12. Although proportional redistribution of their value preserves overall weight consistency within the index, it does not fully capture the distinct production dynamics of these heterogeneous categories. Further, the redistribution of the output also leads to increasing the impact of some items that would otherwise be having lower weights.

4.13. Consequently, while the adopted methodology ensured operational feasibility, statistical manageability, and classification clarity, it also entailed a degree of loss in granularity and sectoral representation within the manufacturing item basket. This loss of representativeness is presented in the table 4.1.

Table 4.1: Share of n.e.c. items in NIC 3-Digits in ASI 2021-22 and 2022-23

Share in output	No of industry groups (NIC 3-Digits) in 2021-22	No of industry groups (NIC 3-Digits) in 2022-23
< 20 %	22	22
20 ≤ to < 50 %	42	38
≥ 50 %	5	9

4.14. The table above demonstrates that the n.e.c. category items have more than 20 percent share in 47 out of 69 industry groups (NIC 3-Digits) in the manufacturing sector covered in IIP in ASI for both years 2021-22 and 2022-23. This implies that the standard classifications are not being able to capture the increasingly diverse products being produced in the manufacturing sector of the country. Thus, in the eventuality of removing the n.e.c. items from the purview of item basket selection, these industry groups would remain under represented. This would have an impact on the effective coverage of the all-India IIP.

Deliberations and Recommendation of TAC-IIP

4.15. The selection of the item basket constitutes the core element of the base year revision of the IIP. The basket is designed to serve as a representative set of industrial products that collectively reflect the structure, composition, and dynamics of the country's industrial output during the base year. In its deliberations, the TAC-IIP emphasized that the item basket must ensure both statistical robustness and economic representativeness.

4.16. For inclusion in the index, items were required to satisfy two essential criteria. First, representativeness, whereby selected products should adequately reflect production across all relevant industry groups and sectors. Second, relative importance, meaning that items must account for a significant share in the total output of the respective industry group so that the index meaningfully captures sectoral performance.

4.17. For the 2022–23 base year revision, the process of selecting the item basket was undertaken separately for each sector, taking into account sector-specific characteristics, data availability, and operational considerations relating to regular high-frequency reporting. The deliberations and methodology adopted for each sector, viz., Mining & Quarrying, Manufacturing, Electricity & Gas, and Water Supply, Sewerage & Waste Management are discussed in detail in the following sections.

Mining & Quarrying

4.18. The mining component of the IIP encompasses fuel minerals, Metallic minerals and Non-metallic minerals, of these the latter two are governed under the Mineral Conservation and Development Rules (MCDR). For the 2022–23 base year revision, the selection of items for the Mining & Quarrying sector was based on production data sourced from the IBM, with the objective of ensuring adequate and representative coverage across major mineral categories. In these lines the IBM has identified 30 minerals comprising of fuel minerals and the metallic and non-metallic minerals covered under MCDR. Additional four minerals, viz., Barytes, Felspar, Mica and Quartz, have been included as non-metallic minerals following the amendment to the Mines and Minerals (Development and Regulation) Act, 1957 vide notification S.O. 924 (E) dated 20.02.2025, whereby these minerals have been removed from the list of minor minerals.

4.19. With the increasing strategic and economic significance of rare earth minerals, the TAC-IIP, during its deliberations, is in favour of inclusion of Monazite in the item basket for the IIP with the new base year 2022-23. Since the data for this mineral is not maintained by IBM, the data for this mineral would be sourced from IREL (India) Limited.

4.20. During its deliberations, the TAC-IIP observed that the importance of the minor mineral sector has been increasing over the years and was of the opinion that the sector should be adequately represented in the item basket for IIP. However, since the all-India production data for minor minerals is not maintained by any agency, the challenge was to identify data sources for these minerals. Since the State Governments, through their respective Mining and Geology Departments, maintain data on minor minerals mined within their jurisdiction, this was explored as a possible data source.

4.21. Presently there are 52 minor minerals as per the list of minor minerals notified by the Ministry of Mines. However, collecting data on all these minerals could result in avoidable strain, especially since, some of the minerals have very insignificant share in the GVO of the minor mineral sector as per NAS. The TAC-IIP is of the opinion that selecting minerals contributing up to 95 percent in the GVO of minor minerals in the year 2022-23 would adequately represent the sector. As per this criteria, nine (09) minor minerals were selected in the item basket for the Mining sector.

4.22. Accordingly, the **TAC-IIP recommends that the item basket for the Mining and Quarrying sector would comprise of 34 fuel and MCDR minerals (metallic and non-metallic), one (01) rare earth mineral and nine (09) minor minerals**.

Manufacturing Sector

4.23. For the 2022–23 base year revision, the item basket for the manufacturing sector was constructed using the output data from the Annual Survey of Industries (ASI) for the years 2021–22 and 2022–23. Since the industrial output data is characterized by high degree of fluctuations in the product level output data a reasonably better representation of items could be possible if the item basket selection is done on the basis of more than one years' production data.

4.24. For the item basket to remain representative for the entire manufacturing sector, the TAC-IIP thought it appropriate to draw the items from each industry group (NIC 3-Digit) in line with the methodology followed for the 2011-12 series.

4.25. Since the ASI, from which data the item basket for IIP is drawn, adopts an establishment approach and the industrial classification of the establishment is ascertained based on its principal activity, it is observed that a product may be produced under different NIC groups. To mitigate this problem and to establish a one-to-one correspondence between the products and industry groups, the TAC-IIP opined that it is appropriate to map items to the industry group in which it has the highest output.

4.26. As for the treatment of "n.e.c." items, based on the observations in section 4.15 above, the TAC-IIP decided to retain the said items for the selection of the item basket for all-India IIP with base year 2022-23. For the n.e.c. items selected in the item basket for IIP, it was decided that, the NSO, FOD would be requested to identify the exact items being produced by the factories for these product codes.

4.27. Then two sets of items were then selected from the ASI data for 2021-22 and 2022-23 so as to ensure that all products contributing up to 90% of the output of each industry group (NIC 3-Digit) is selected. The common items in the above two sets of items were then selected in the item basket for IIP with base year 2022-23. Where the common items selected for a particular industry group have an output of less than 80 percent of the output of the industry group in 2022-23, the item basket for the industry group was augmented to include further items from the ASI 2022-23 item set till at least 80 percent of the GVO of the industry group is covered. This methodology ensured that the item basket selected is not only representative at the industry group (NIC 3-Digit) level, but also consists of items that are relatively stable.

4.28. The item basket so selected contained 1114 items, of which 276 were from the "n.e.c." category. To ensure appropriate treatment of these n.e.c. items, a structured two-stage process was adopted:

i. These items were first shared with the NSO, Field Operations Division (FOD), and detailed information on these items, including specific product names and corresponding value of output were collected through field visits to the factories producing them.

ii. In the second stage, the information gathered was systematically examined to determine the appropriate classification and treatment of the selected "n.e.c." items. Based on detailed product descriptions and value of output data collected,

each item was carefully assessed to establish whether it represented a clearly identifiable product, corresponded to an already existing item in the basket, or remained too heterogeneous for separate inclusion.

4.29. On the basis of this evaluation, 43 items were identified as distinct product groups and were introduced as new items in the basket. A total of 180 items were found to be similar to existing products and were merged with the corresponding aligned categories. The remaining 53 items were categorized as mixed or non-distinct, and their GVO was proportionately distributed at their respective NIC 3-digit level to preserve overall weight consistency within the industry group.

4.30. The items that were present in the item basket for 2022-23 (90 percent criteria) but were not selected in the final basket while implementing the above methodology were reviewed. It was observed that some items, that were otherwise important, were not selected in the final item basket due to the common item criterion applied in the selection process. The TAC-IIP deliberated on this issue and decided that in order to cover emerging items in the item basket for all-India IIP, all such items that were not selected due to the common items criteria but accounting for more than 2 percent of the GVO of the industry group (NIC 3-Digit) in ASI 2022-23 would be included in the item basket for IIP.

4.31. Accordingly in the matter of item basket selection for the Manufacturing sector of IIP with base year 2022-23, **the TAC-IIP recommends** the following:

i. The item basket for IIP with base year 2022-23 would be selected based on the data for ASI 2021-22 and ASI 2022-23.

ii. Where items are found to be produced in different industries in ASI, the items would be aligned with the industry where it has the highest output.

iii. The "n.e.c." category items would be retained for selection in the item basket. On the eventuality of selection of "n.e.c." items, the services of the FOD of NSO may be taken to identify the specific products being produced under these categories.

iv. The item basket would be drawn at the industry group (NIC 3-Digit) level ensuring adequate coverage and robustness of the item basket.

v. Two sets of items are to be selected from the ASI data for 2021-22 and 2022-23 so as to ensure that all products contributing up to 90% of the output of each industry group (NIC 3-Digit) is selected. The common items from these two sets would comprise the item basket for IIP with base year 2022-23.

vi. If it is observed that the common items selected for a particular industry group have an output of less than 80 percent of the output of the industry group in 2022-23, the item basket for the industry group is to be augmented to include further items from the ASI 2022-23 item set till at least 80 percent of the GVO of the industry group is covered.

vii. To ensure representation of emerging items in the item basket for all-India IIP, all such items from ASI 2022-23 that account for more than 2 percent in the industry

group (NIC 3-Digit) shall be included in the item basket for IIP, even if they do not qualify for selection as per the methodology detailed above.

4.32. The treatment of the Production Linked Incentive (PLI) scheme was also deliberated by the TAC-IIP. It was felt that the new/ emerging and niche items being produced in the economy may be captured leveraging the data from this scheme. The TAC-IIP was of the view that since the ASI captures data at the establishment level, capturing it through the survey would be a challenge. Accordingly, to incorporate such items new data sources may be identified which may be used for updating the item basket in the chain-linking framework.

4.33. Following the identification of selected products for inclusion in the new item basket, the next step involved the creation of item groups for the purpose of IIP compilation. While product-level selection was undertaken using detailed ASI data and sector-specific administrative sources, operational requirements of high-frequency data collection necessitated rational grouping of products into manageable item groups.

4.34. Item-group creation was carried out with due regard to classification consistency and data reporting feasibility. Products sharing similar characteristics and belonging to the same NIC 5-digit category were grouped together to form a single item group. This ensured conceptual homogeneity within each group while reducing fragmentation in reporting. The grouping exercise also aimed to balance representativeness with operational efficiency, as too many narrowly defined product categories could affect data quality, timeliness, and response rates.

4.35. At the same time, care was taken to avoid excessive aggregation that might dilute the sensitivity of the index to changes in specific industrial segments. The final item groups were therefore structured to maintain alignment with industrial classification standards while ensuring regular and reliable monthly data flow for compilation of the index.

4.36. The item groups formed after selection of the item basket for all India IIP with base year 2022-23 may be seen at **Annexure III**.

Electricity & Gas Sector

4.37. As per the IRIIP, 2010, the scope for IIP includes the Section D of ISIC, which includes Generation, transmission and distribution of electricity, Manufacture and distribution of gaseous fuels, supply of steam and air conditioning supply. The 2011-12 series of IIP covered the generation of electricity but did not include the rest of the section within the scope for all-India IIP. This was primarily because of the relatively small size of the rest of the activities under this section as also the lack of data for these sectors.

Electricity

4.38. In the IIP series with base year 2011-12, there was no decomposition of the electricity generated by different sources although the generation by sector was available on a monthly basis. Thus, electricity was treated as a single aggregated item group capturing total generation from all sources.

4.39. However, in view of the structural transformation in the energy sector and the increasing policy significance of renewable energy, the TAC-IIP was of the opinion that the Non-renewable and renewable sectors of electricity have to be measured separately in the IIP with base year 2022-23. This would enable the independent measurement of the green energy sector in the overall power mix. The Committee is of the view that the disaggregation of sources of electricity will be a major step forward in purposeful dissemination of industrial statistics as it will enable stakeholders to track the ongoing switch to renewables as part of its strategies as well as its commitments towards protecting global commons by increasing renewable energy use, and adopting green technology, while supporting policies aimed at rapid electrification and energy independence.

4.40. The Non-renewable sources of electricity would include power generation through technologies using coal, lignite, gas and other fossil fuels. This sector would also include electricity generated by nuclear power plants. The renewable sources of electricity would include hydro, solar, wind, biomass, and other non-fossil fuel-based technologies.

4.41. Thus, **the TAC-IIP recommends the creation of two separate items in the electricity sector, viz., Non-renewable Electricity Generation and Renewable Electricity Generation, in the item basket for the Electricity sector for IIP with base year 2022-23.**

Gas Supply

4.42. Although, the manufacture of gases produced from fossil fuels are covered in Section C (Manufacturing: 2-Digit – 19) of ISIC Revision 4, the distribution for these gases is to be covered in Section D

4.43. As the preferred volume indicator for distribution of gases, the IRIIP 2010 identifies quantity of gas distributed, measured by volume, by product. The TAC-IIP identified the Ministry of Petroleum and Natural Gas (MoPNG) as the source for data of this sector.

4.44. **The TAC-IIP recommends the inclusion of Distribution of gases in the item basket for IIP with base year 2022-23. This item is to be placed under the Electricity and Gas sector.**

4.45. The other activities included in Section D, i.e., Steam and Air Conditioning supply, is not a relevant activity as far as India is concerned. It may be added here that ‘Air conditioning supply’ refers to the entire system, infrastructure, and process involved in delivering conditioned air (cooled, heated, dehumidified, or filtered) to a space, whereas ‘air conditioners’ (AC units) are the specific machines that perform the cooling and heat removal that are already covered under consumer durables in IIP. Hence, **the TAC-IIP recommends that Steam and Air Condition supply may be kept out of the purview of all-India IIP**.

Water Supply, Sewerage & Waste Management

4.46. As the alternate volume indicator for measuring water supply, the number of Water tap connections in rural and urban areas is available with the Department of Drinking Water and Sanitation and the Ministry of Housing and Urban Affairs. Thus, in absence of a better variable to capture this sector and keeping in mind the importance of the sector, the **TAC-IIP recommended that the water supply may be included in the item basket for IIP with base year 2022-23 and it be measured using the number of tap connections.**

4.47. The **TAC further recommends that the sewerage sub sector may also be covered using the data on number of sewerage/ septage connections in 500 AMRUT cities while the waste management sub sector may be covered using the data on volume of waste collected and treated**. However, the TAC-IIP recommends that these two sub-sectors may be clubbed together.

4.48. Thus, the Water Supply, Sewerage & Waste Management sector would be represented by two indices, one for water supply and the other being Sewerage & Waste Management.

Comparison of Item Baskets

4.49. A comparison of the new item basket with that of the 2011–12 series indicates significant improvements in coverage, representativeness, and structural alignment with the contemporary industrial landscape. The 2011–12 series comprised 407 item groups (including one for Mining and one for Electricity), derived from 809 manufacturing products selected primarily on the basis of ASI 2010–11 and 2011–12 data.

4.50. In contrast, the revised basket for the 2022–23 base year has been constructed using more recent ASI datasets and expanded administrative data sources. The revised basket includes a larger number of selected products and enhanced coverage across NIC categories. Notably, the treatment of n.e.c. items has been refined to improve representativeness, and the Mining sector coverage has been broadened to include additional categories. Furthermore, in the Electricity sector, the earlier single aggregated item group has been restructured into separate Renewable and Non-Renewable item groups, reflecting structural shifts in the power sector.

4.51. Overall, the revised item basket demonstrates improved alignment with the current industrial structure, greater sectoral granularity, and enhanced responsiveness to evolving production patterns, thereby strengthening the statistical robustness and policy relevance of the IIP.

4.52. The following table compares the items baskets for IIP with base year 2011-12 with that of IIP with base year 2022-23.

Table 4.2: Comparison of item baskets

	2011-2 series	**2022-23 series**
Number of item groups	407	463
Mining and Quarrying	1 (29)	3 (44)
Manufacturing	405	455
Electricity & Gas	1	3
Water supply, Sewerage & Waste Management	--	2
Item Basket 2022-23		
Number of Dropped items From 2011-12 Series	64	
Number of Common items With 2011-12 series	343	
Number of New items	120	

4.53. Thus, from the 405 item groups in the manufacturing sector of 2011-12 item basket, 64 item groups have been dropped and 120 new item groups have been added. These changes are due to inclusion/ exclusion of items as per the present industrial structure as also changes in the importance of the items.

4.54. Additionally, the electricity and mining sectors have been split by sources of electricity generation (Non-renewable and renewable – 2 item groups) and type of minerals (fuel, metallic and non-metallic – 3 item groups) respectively. This was done keeping in view the increasing demand for more disaggregated data from the users.

4.55. Further, in conformity with the international recommendations and in view of the available data sources, new sectors like gas supply (1 – item group) and water, sewerage & waste management (2 – item groups) have also been added in the new item basket.

Frame of factories

4.56. The frame of factories refers to the comprehensive list of industrial establishments selected for the collection of monthly production data for the compilation of the IIP. It constitutes the operational reporting framework from which production data are sourced and forms a critical foundation for ensuring regular and timely compilation of the index.

4.57. Ideally, as per the guidelines of the United Nations Statistics Division (UNSD), a National Business Register (BR) should serve as the sampling frame for factory selection in the IIP. In most industrialised countries this business frame is drawn from the Value Added Tax (VAT) database. A Business Register provides an updated and comprehensive listing of active industrial units, enabling

systematic and statistically robust selection of reporting establishments. However, in the absence of a fully developed National Business Register within India's statistical system, the frame of factories for the IIP is derived primarily from the Annual Survey of Industries (ASI). The ASI frame represents the most comprehensive and structured database of registered manufacturing establishments and therefore serves as the best available alternative for constructing the reporting framework for the IIP.

4.58. **The TAC-IIP considered the possibility of using the Goods and Services tax (GST) database for developing a business registry for eventual compilation of the production indices.** It noted that using the GST data for computing an Index of Production (like IIP) or industrial production statistics may have significant advantages in coverage and cost, but may pose challenges regarding conceptual alignment and may have some leads and lags in relation to production of goods at ex-factory gate and the tax filings. While the Pay As You Earn (PAYE) principle guides VAT in many countries, leads and lags can occur when transactions booked differ from earnings data and tax filings, can have its own mismatches. As such, the TAC-IIP felt that MoSPI should move towards a GST-based production data based on business registry over a period by first testing the GST reporting for capturing production. It noted that if the data reporting based on GST stabilises with low errors, it can save time and manpower and so costs of compiling data and might eventually offer real-time insights into business turnover and input costs. The Committee, therefore, strongly recommends a continuous monthly exercise for data collection intended towards IIP computation on a monthly basis for a period of 2-years before taking a view towards generating IIP on the basis of such a business registry.

4.59. The frame includes factories that were operational during the base year and are engaged in the production of items included in the IIP item basket. The industrial units are identified using ASI data, supplemented by administrative records and inputs from concerned source agencies. The objective is to ensure that each selected item in the basket is supported by an adequate number of reporting units, thereby maintaining stability, representativeness, and continuity in the index. A well-defined frame of factories is essential not only for high-frequency data collection but also for minimizing volatility arising from non-response or closure of units and for sustaining consistency in industrial production statistics over time.

Methodology for Selection of Factories

4.60. The compilation of the Index of Industrial Production (IIP) depends critically on the timely and reliable collection of production data from a representative set of reporting units. Since the selection of factories is intrinsically linked to the finalized item basket, a systematic and data-driven methodology was adopted to identify establishments that significantly contribute to the output of the selected items in the new IIP series.

4.61. The process began with mapping establishments to the item basket using data from the Annual Survey of Industries (ASI) 2022–23. All factories engaged in the production of the selected items in the item basket were identified and factories accounting for up to 80 percent of the total GVO of each item were selected for inclusion in the reporting panel. Additionally, a minimum threshold of at least four

(04) factories per item was maintained to reduce the risk of volatility arising from dependence on a limited number of units. In cases where fewer than four factories met the 80 percent criteria, the panel was augmented with factories from the ASI 2022-23. If factories were not available for selection in the ASI data for 2022-23, The factories available in the 2011-12 series of IIP were also considered for augmentation.

4.62. In cases where the number of factories could not be augmented, further attempts were made to merge the items with other items/ item groups with similar characteristics failing which the items were dropped from the item basket. This approach ensured that the majority of industrial production for each item was captured while maintaining manageability in data collection.

4.63. Items having considerable share in the item basket were observed to have very few producing factories. In such cases the items were retained in the item basket in order to capture such niche and emerging sectors of the industry. It was decided that if the factories producing such items closed down during the currency of the series hampering the data flow, such items would be removed from the item basket and their weights would be distributed among other items within the same industry group (NIC 3-Digit).

4.64. In situations where identified factories were not available due to closure, non-response, or other operational constraints, the reporting frame was augmented at the time of finalization. Supplementary factories were identified using subsequent rounds of ASI data as well as lists maintained by source agencies responsible for providing regular monthly production data. This ensured continuity, stability, and adequate coverage in the reporting panel.

4.65. Accordingly, in the matter of factory selection, **the TAC-IIP recommends:**

i. **Factories accounting for up to 80 percent of the total GVO of the items in the item basket are to be selected for inclusion in the reporting panel of factories.**

ii. **A minimum threshold of at least four (04) factories per item is to be maintained to reduce the risk of volatility arising from dependence on a limited number of units.**

iii. **In cases where fewer than four factories met the 80 percent criteria, the panel is to be augmented with factories from the ASI 2022-23. If factories were not available for selection in the ASI data for 2022-23, The factories available in the 2011-12 series of IIP were also considered for augmentation. If both the above augmentation strategy failed, the factories available in the 2011-12 series of IIP is to be used for augmentation of panel of factories.**

iv. **In cases where the number of factories cannot be increased further, attempts would be made to merge the item with other items/ item groups with similar characteristics.**

v. **In cases of niche and emerging items where the number of producing factories is lower than the decided threshold of four (04) factories, the item may be retained in the item basket. If the factories producing such items closed down during the**

currency of the series hampering the data flow, such items would be removed from the item basket and their weights would be distributed among other items within the same industry group

vi. **Where identified factories are not available due to closure, non-response, or other operational constraints, the reporting frame is augmented with factories identified in the subsequent rounds of ASI frame and with lists maintained by source agencies.**

PREPARATION OF WEIGHTING DIAGRAM

4.66. The weighting diagram constitutes a fundamental element in the compilation of the Index of Industrial Production (IIP), as it determines the relative importance assigned to products, industry groups, and sectors in the aggregation process. The TAC-IIP recognised that the methodology for deriving the weighting structure should continue to be guided by the IRIIP, 2010.

4.67. Considering the above, the IIRIP, 2010 recommends that the Gross Value Added (GVA) at basic prices data is used as the weight variable for compiling the IIP for the different levels of the ISIC structure of interest. This is the correct representation as this is the additional value created by the process of production, known as **value added**. More specifically, it suggests that for driving weights for industry at the 1-, 2-, 3- and 4-digit levels of ISIC, the share of gross value added at basic prices by industry of all industries in scope of industrial production should be used as such information is available through annual national accounts compilation.

4.68. TAC-IIP, therefore recommended that it is appropriate that the aggregation of industry-level indices is undertaken using value-added weights. This approach ensures that the relative importance assigned to each industry in higher-level aggregations accurately reflects its contribution to the economy. The use of output-based weights, in contrast, is not conceptually appropriate, as it tends to overstate the significance of industries with substantial use of intermediate goods and services, thereby introducing a distortion arising from double counting in the aggregated indices. Accordingly, the adoption of value-added weights is considered essential for ensuring a more accurate and analytically sound measure of industrial performance

4.69. While it would be desirable to use value added as the weighting variable at all levels of IIP, this is limited by practical circumstances. The concept of value added is applicable only for activities (industries) but not to products. Hence, the concept cannot be implemented across all levels of IIP. The IRIIP, 2010 recommends the following with respect to the methodology for deriving the weighting diagram at different levels:

> "*Value of output is recommended as the weight variable to compile the IIP at the product and product group levels of the index. Gross value added at basic prices data is recommended as the weight variable to compile the IIP for the different levels of the ISIC structure*." *(paras. 5.56-5.62 of IRIIP, 2010)*

4.70. These conceptual frameworks stipulated in the IRIIP, 2010 provides the conceptual framework for drawing the weighting diagram for IIP.

Methodology in the 2011–12 Series

4.71. The weighting diagram for the 2011–12 series of IIP was prepared following the established framework used in earlier series where the weights were distributed using a top-down approach. In this method, the weights were distributed in a top-down approach where the sectoral weights were first derived. These weights were then distributed among different industries. The industry level weights were then distributed at the item group level.

4.72. Sectoral Weights were determined for Mining, Manufacturing, and Electricity based on their respective shares in national GVA at current prices for the year 2011–12 derived from the NAS. These sectoral weights reflected the relative contribution of each sector to the overall industrial economy. The methodology used for distributing the weights further is given below.

4.73. The Mining sector comprised of the fuel minerals and the metallic minerals and the non-metallic minerals covered under the MCDR. The weights for these minerals were determined based on their respective GVA as a proportion of the total GVA of the Mining sector.

4.74. For the Manufacturing sector, the overall sectoral weight was first distributed across the industry divisions (NIC 2-Digit levels) of NIC-2008 in proportion to their GVA as per ASI 2011–12. These 2-digit weights were further allocated to industry groups (NIC 3-digit) and then to the classes (NIC 4-digit) using corresponding GVA figures from ASI 2011–12.

4.75. Since the ASI does not disseminate results at the NIC 5-digit level, the NIC 4-digit weights were distributed directly to the item groups in proportion of their Gross Value of Output (GVO) derived from ASI 2011–12. The NIC 5-Digit level weights were derived by aggregating the weights of the item groups within the category.

4.76. In this regard, it is to be noted that the in base year 2011-12 it had been observed that the subsidies given by the Government to the industries in NIC Division 19 (Manufacture of coke and refined petroleum products) were not adequately captured in the ASI. This was because the subsidies were given at the enterprise level and the ASI captured data at the establishment level. Thus, the weights for the NIC Division were calculated after adjusting the GVA from ASI 2011-12 with the subsidies given by the Government.

4.77. Electricity was treated as a single combined item group encompassing total generation from both Non-renewable and renewable sources. Since electricity was represented as one aggregated item group, no further disaggregation of weights was undertaken within the sector in the 2011–12 series.

Deliberations and Recommendations of TAC-IIP

Sectoral Weights

4.78. In view of the expanded scope of the all-India IIP with base year 2022–23, as compared to the earlier base year of 2011–12, the broad sectors covered under the index comprise of Mining &

Quarrying, Manufacturing, Electricity & Gas, and Water Supply, Sewerage & Waste Management. It was noted that the weights assigned to these sectors are to be derived on the basis of their respective shares in GVA at current prices, as reported in the National Accounts for the year 2022–23. Further, in line with the revision of the base year of the National Accounts to 2022–23, the weighting structure for the IIP is also to be based on the revised series of the NAS. These constitute the primary weights in the IIP and form the top level of the hierarchical weighting structure.

Industry and Item-Level Weights

Mining Sector

4.79. The minerals in the item basket for the mining sector can be segregated to fuel minerals, MCDR minerals (metallic and non-metallic minerals), rare earth minerals and the minor minerals. The weighting data (GVA) for the fuel minerals and MCDR minerals are available with the Indian Bureau of Mines (IBM). For the rest of the minerals, i.e., the rare earth minerals and the minor minerals, the weighting data has to be sourced from the NAS.

4.80. Another challenge in this exercise was to assign weights for the four minerals (Barytes, Feldspar, Mica and Quartz) that were classified as MCDR minerals in February 2025. Since the data for these minerals were not maintained by the IBM during 2022–23, the GVA for these minerals were also not available with them. Hence, for the purpose of assigning weights for these minerals in IIP, the GVA for these minerals for 2022–23 was calculated using GVO provided by NAS and average input cost for non-metallic minerals.

4.81. **The TAC-IIP recommends the weights for the minerals are to be assigned as per their proportion in the GVA of the mining sector, using the GVA data received from the different sources mentioned above.**

Manufacturing Sector

4.82. The methodology for constructing the weighting diagram for the Manufacturing sector in the IIP series with base year 2022–23 would broadly follow the approach adopted for the base year 2011–12. The systematic procedure followed during the earlier base year revision ensures continuity and methodological consistency, while also providing a robust and well-tested framework for assignment of weights.

4.83. A key issue deliberated by the TAC-IIP was whether the GVA used for deriving weights should be adjusted to account for subsidies received by different industries. This consideration assumes importance in ensuring that the weights reflect the true economic contribution of industries, without distortion arising from policy-induced transfers. This assumes special importance given the methodology used for weight distribution for IIP with base year 2011-12.

4.84. It was noted that budgetary subsidies provided by the Government are primarily concentrated in the petroleum and fertilizer sectors. It was further observed that, in the case of the fertilizer sector, such subsidies are extended at the establishment level and are, therefore, adequately captured in the

Annual Survey of Industries (ASI). In view of this, no adjustment to the Gross Value Added (GVA) was considered necessary for this sector.

4.85. With regard to the petroleum sector, it was noted that budgetary subsidies from the Government have largely been phased out over time. The support currently extended to this sector is primarily in the nature of compensation to petroleum marketing companies for losses incurred may not be appropriately captured in ASI. As such treatment of compensation of these losses may be done in accordance with the methodology adopted by National Accounts.

4.86. In light of the above discussions, **the TAC-IIP recommends the following methodology for distribution of weights for the Manufacturing sector of IIP with base year 2022-23:**

i) **Weights at NIC 2-digit Level**

The total weight of the Manufacturing sector, as derived from its share in GVA at current prices from NAS 2022–23, is distributed across NIC 2-digit level industry divisions in proportion to their respective GVA in ASI 2022-23.

ii) **Weights at NIC 3-digit and 4-digit Levels**

The weights assigned at the NIC 2-digit level are further distributed to the 3-digit levels in proportion to their respective GVA figures in ASI 2022–23. The NIC 3-digit level weights are then distributed among the NIC 4-digit levels using their shares in GVA of their respective NIC 3-digit.

iii) **Weights at Product/Item-Group Level**

At the most disaggregated level, the 4-digit industry weights are distributed among the selected item groups in proportion to their Gross Value of Output (GVO) contribution within the respective 4-digit industry group from ASI 2022-23.

Electricity & Gas

Electricity

4.87. The TAC-IIP is of the opinion that the combining the generation of electricity by different sources – Hydro, Thermal (coal and gas based), Nuclear, Solar and Wind – into one category would dilute the intra-sector dynamics and also result in erroneous representation of the sector. Separating the Non-renewable and renewable sources of electricity would definitely help in addressing the requirement for disaggregated data for the sector and also provide scope for analysis in the field of green energy, but the best possible treatment would be to provide separate weights for each source of energy. The question was to find a methodology to estimate the GVA of the sector by each source or to find a close proxy for these estimates.

4.88. In the absence of any data for GVA by source of electricity, the next best option was taken. The quantity of electricity generated in 2022–23 across all sources was sourced from the Annual Report of the Central Electricity Authority (CEA). Similarly, the all-India average rate of sale of power for these sources of electricity was also taken from the Central Electricity Authority (CEA). The revenue

estimated by multiplying these two values could be taken as a proxy for the GVA for the different sources of electricity.

4.89. **The TAC-IIP recommends the use of the following methodology for assigning weights to the electricity sector for IIP with base year 2022-23:**

i) **The quantity of electricity generated by source may be multiplied by the all-India average rate of sale of power for the sources to get the estimated revenue by source of power.**
ii) **Using this revenue data, the proportional shares of Hydro, Thermal (coal and gas based), Nuclear, Solar and Wind electricity is to be derived.**
iii) **The weight of the electricity sector derived from NAS would then be divided among all the sources of electricity as per the proportions calculated above.**

Gas Supply

4.90. **For Gas distribution, the TAC-IIP recommends the use of the GVA of gas distribution from NAS 2022-23 for deriving the weights for this sector.**

4.91. The TAC-IIP was of the view that the above recommended changes, though adding substantially to the IIP compilation work, will help bring about significant improvement in coverage and better capturing the industrial output based on appropriate representation of the weights.

Water Supply, Sewerage & Waste Management

4.92. **The TAC-IIP recommends that the weight for the Water Supply, Sewerage & Waste Management sector is to be derived from the proportion of the GVA of this sector in NAS 2022-23.**

4.93. The inclusion of this sector in IIP would not only align the all-India IIP with the international recommendations, but would also serve as a measure for a sector with growing significance with the increasing urbanization.

INDEX COMPILATION METHODOLOGY

Index

4.94. The Index of Industrial Production (IIP) is a composite statistic that measures short-term changes in the volume of industrial production. As an index, it is a statistical measure designed to show changes in a variable or average changes in a group of related variables over time, relative to a specified base period. It expresses the level of a phenomenon in a given period as a ratio or percentage of its level in the base period, which is typically assigned a value of 100. By converting absolute figures into relative measures, an index facilitates comparison across time while abstracting from differences in scale. The TAC-IIP delved into methodological issues related to compilation of the IIP as an index and in this chapter, we explain these considerations and the recommended methodology for compilation of IIP for India.

4.95. In economic statistics, index numbers are commonly used to measure changes in prices, quantities or values. In the context of the IIP, the index measures the change in the volume of industrial output over time, relative to the base year. It aggregates production data across sectors and products using an appropriate weighting structure, thereby providing a summary indicator of industrial performance.

4.96. An index thus serves as a concise and standardized tool for tracking trends, identifying turning points, and analysing structural movements in economic activity.

Statistical Unit

4.97. A statistical unit is an entity about which information is sought and for which statistics are ultimately compiled. For example, it could be institutional unit, enterprise, enterprise group, or an establishment. For the purpose of all industrial statistics, the IRIS 2008 recommends the *establishment* as the preferred statistical unit. On these lines, the IRIIP 2010 too recommends the *establishment* as the preferred statistical unit. It is so recommended as the ideal statistical unit for IIP as it is the most detailed unit for which the range of data required is normally available.

4.98. The *establishment* is defined as "an enterprise or part of an enterprise that is situated in a single location and in which only a single productive activity is carried out or in which the principal productive activity accounts for most of the value added."

Industrial Output

4.99. The aim of the IIP is to reflect the volume developments in value added over time. However, the measurement of value added for the purposes of the IIP is difficult to achieve in practice, as it is not possible to calculate value added at high frequency. This is because the data required, in particular for calculating intermediate consumption, are not available at the required detail and/or frequency level. Therefore, the challenge is to obtain the best approximation of short-term movements in value added. These approximate measures of value-added centre around output of production.

4.100. Measurement for output may be carried out in a number of ways. Output can be measured in monetary terms (values) or in physical quantities. In addition, according to IRIIP, 2010, a simplified concept of output referred to as "value of output sold in the reference period" is sometimes also utilized to for the purpose of IIP.

Volume of Output

4.101. In most cases, the output of an establishment is collected in terms of physical quantities. This method measures output in terms of number of items, tonnes, litres, etc., in order to track the movement in production. This data is appropriate in the context of IIP when the products are homogeneous.

Value of Output

4.102. The value of output includes products produced, whether they are sold, otherwise used or entered into inventories. When a production process extends over two or more reference periods, it is

necessary to calculate the work-in-progress completed within a given reference period. The data for these products would also be reported in values.

4.103. Capturing the production in values is also necessary to adjust for the difference in quality of the product. For example, in item groups like gold jewellery, readymade garments, medicines, etc., the difference in per unit prices for the items within these groups are considerably high owing to the differences in size and quality of the products. In such cases the values of output rather than the physical quantities are considered to be better measures of output.

4.104. Again, there are instances where the establishments or reporting units selected for reporting monthly production data for a particular item group may report in different units of quantity which cannot be reconciled. In such cases too, the value of output is taken as the measure for output.

4.105. Where value of output is used, the volume measure is obtained through the use of an appropriate price deflator. The price deflation process (discussed in detail in Chapter III) will ensure that any quality changes of the products during the series are reflected in the production volume.

4.106. After detailed deliberations on this matter, the **TAC-IIP recommends a hybrid approach in capturing the industrial output. Volume measures would be used for capturing output of homogeneous item groups and the value of output would be captured in cases of heterogeneous item groups and in cases where the quality difference within the item group is high. For items where the period of production is more than a month, the "work in progress" is to be taken as the measure of output.**

Estimation of Non-Response

4.107. In the compilation of the Index of Industrial Production (IIP), timely and complete reporting of production data from selected establishments is essential. Instances of non-response may arise due to operational disruptions, delays in reporting, technical issues, or other administrative reasons. The factory level data collected on monthly basis often suffers from non-response. In such cases the production of the factory is estimated to ensure continuity and stability of the index.

4.108. To address this issue, the Working Group for Development of Methodology for Compilation of IIP with base year 2011-12 had recommended three basic methods for estimation of non-response from factories arising for temporary reasons.

i. Using the previous month's production figure of the particular unit, thereby assuming short-term continuity in output.
ii. Using the production figure of the same month in the previous year, which accounts for possible seasonal patterns in production.
iii. Using the average of the last three months' production figures of the particular unit, which helps smooth short-term volatility and provides a more stable estimate.

4.109. The TAC-IIP reviewed the existing methodologies and observed that using the above estimation procedures are heavily guided by certain assumptions. While repeating the previous months' reported production assumes that the value or quantum of production of the factory remains unchanged

over time, the second method, i.e., repeating the production of the same period of the previous year assumes that the value/ quantity of production of the unit remains of the same order as in the previous year. Estimating the production of the current month by using the average of the production of the previous 3 months assumes that the value/ quantity of production remains of the same order as in the last three months.

4.110. Although such estimation techniques may yield reasonable results in certain cases, they generally have a dampening effect on the index. As the base year becomes older and instances of non-response increase, the IIP would be erring from the actual level of industrial growth by a bigger margin.

4.111. It is noted that non-response cases may be of two types:

i. Non-response for known reasons, like permanent closure, change in line of production, etc. In these cases, there is no need for estimation as the exact reason for the non-response is known.

ii. Non-response for unknown reasons. Estimation is required for such cases but the procedure for estimation would depend on the nature of the product and the period of non-response.

4.112. The Committee observed that estimation techniques are useful in cases where non-response is temporary in nature. However, in situations involving prolonged non-response, permanent closure of units, or a change in the line of production, complete substitution of the factory would be a more appropriate approach. The Committee further noted that, since such estimations are to be carried out at the level of the source agencies, the use of highly complex or elaborate imputation techniques may not be practical to implement.

4.113. In view of the above, the following non-response treatment options were examined by the TAC-IIP.

i. Substitution with a similar factory: The non-responding factory is replaced in the panel of factories by another factory producing the item. The scale of production of the factory being introduced should be similar to the one being replaced.

ii. Average Growth Rate of Reporting factories: The month-on-month growth of the reporting factories is used to estimate the production of the non-reporting factory.

iii. Carry forward of last reported data: The production reported by the factory in the previous period is carried forward and taken as the production of the current period.

iv. Carry forward of previous years' corresponding period data: The data reported in the same period of the previous year is taken as the production for the present period.

v. Average of previous 3-/ 12-month: The average production of the previous 3-/ 12-months is taken to be the production of the present period.

4.114. The TAC-IIP observed that methods such as carrying forward the last reported production or repeating the production of the corresponding period of the previous year are not very effective for addressing non-response, as they implicitly assume that production levels remain unchanged over time.

Instead, the Committee favoured more representative imputation approaches, such as using the average growth rates of responding factories or the average production over the preceding 3 or 12 months. These methods were considered better suited to capturing underlying trends and variations in production.

4.115. The above imputation methods were examined as per their applicability in different scenarios. The TAC-IIP noted that the responses to non-reporting of data should not only depend on the duration of non-reporting, but also on the size of the factory that is not reporting. For example, the imputation method to be used for a factory that has considerable share in the output of the item in base year would have a greater impact on the item level index and hence should be treated differently.

4.116. After necessary deliberations, the **TAC-IIP recommended the use of the estimation as per the Table 4.3.**

Table 4.3: Imputation techniques to be used in different scenarios

Scenario	Imputation technique
Factory closed	Substitution of factory
Factory changed line of production	Substitution of factory
Factory producing item but refuses to provide data	Substitution of factory
Temporary non-response (< 6 months)	Average Growth Rate of Reporting factories; OR Average of previous 3 or 12-month

Compilation of IIP

4.117. There are three main types of indices that are used internationally to aggregate quantities over time. For the Laspeyres' index, the weights of some fixed base period are used. For the Paasche index, the weights of the current period are used. The Fisher index is defined as the geometric mean of the Laspeyres and Paasche indices.

4.118. All the indices have characteristics that make them desirable in certain circumstances. The Fisher index possesses several theoretically desirable characteristics like, factor reversal and time reversal, but it is difficult to produce in a timely and cost-effective manner since it uses Paasche index where Current period data on quantity and prices is required. The Laspeyres type index benefits from taking practical compilation constraints into consideration.

4.119. The IRIIP, 2010 observes that selection of the index type to be used in compiling the IIP should take the following into consideration:

- Purpose of the index: to provide a short-term indicator of production and, where required, to be used in the compilation of the quarterly national accounts
- Theoretical considerations: inclusion of an up-to-date weighting structure, time and factor reversal, etc.
- Practical considerations – what can be practically achieved in the context of resource constraints and data availability

4.120. In an overall assessment of the above practical and theoretical points, Laspeyres type volume index is widely used by different countries. So, in line with the recommendations of the IRIIP 2010, the **TAC-IIP recommends the continued use of Laspeyres' type index for the compilation of all-India IIP.**

4.121. Mathematically, the Laspeyres type index formula is expressed as:

$$L_t = \frac{\sum W_i R_i}{\sum W_i}$$

Where,

W_i = Weight assigned to item i in the base year

R_i = Production relative of item i, calculated as $P_{i,t} / P_{i,0}$

$P_{i,t}$ = Production of item i in the current period (t)

$P_{i,0}$= Production of item i in the base period

4.122. The choice of Laspeyres' over Paasche's or Fisher's index, despite its downward bias, has been guided by very practical consideration that the current period weights will be unavailable to compute the IIP as per the other formulas. It is for this very reason that across countries IIP is calculated as a Laspeyres index and the same considerations guide even the CPI calculations.

4.123. **The TAC-IIP also recommends that:**

i. **IIP is to be compiled using a bottom-up approach where, the item group level indices are compiled first. These indices would then be aggregated to NIC 5-/ 4-/ 3-/ 2-Digit level indices using the Laspeyres' index formula.**
ii. **The NIC 2-Digit level indices would be aggregated to get the Manufacturing sector indices using the Laspeyres' index formula.**
iii. **The sector level indices for Mining & Quarrying, the Electricity & Gas and Water supply, Sewerage & Waste Management sectors would be calculated by aggregating their respective item/ item group level indices using the Laspeyres' index formula.**
iv. **The General Index for IIP would be calculated by aggregating the sector level indices.**

Computation of Use Based Category-wise Indices

4.124. In addition to sectoral and industry-wise indices, the IIP is also compiled according to Use-Based Categories, which classify industrial products based on their use. Details about this categorization may be seen in Chapter III.

4.125. Each item group in the item basket for all-India IIP is mapped to use-based categories such as Primary Goods, Capital Goods, Intermediate Goods, Infrastructure/Construction Goods, Consumer

Durable Goods, and Consumer Non-Durable Goods. The computation of use-based indices follows the same Laspeyres' fixed base methodology explained above.

4.126. Since the Use Based Classification is not a hierarchical classification, **the TAC IIP recommends that the item group level indices may be aggregated directly as per the Use Based Categories using the Laspeyres' index formula.**

DISSEMINATION OF IIP

Existing Dissemination Practices

4.127. In India, the IIP is released on a monthly basis through a press release issued by the MoSPI. The release provides information on the overall index as well as detailed sectoral and industry-wise performance.

4.128. The present dissemination framework provides indices at multiple levels of disaggregation to facilitate meaningful analysis of industrial performance. These include sectoral indices for Mining, Manufacturing, and Electricity, industry-wise indices at the NIC 2-digit level of the Manufacturing sector, and indices based on use-based categories such as Primary Goods, Capital Goods, Intermediate Goods, Infrastructure/ Construction Goods, Consumer Durables, and Consumer Non-Durables. This classification enables users to analyse industrial growth from both production and demand perspectives.

4.129. With regard to the presentation and dissemination of indices, UNSD has provided certain recommendations to ensure consistency and usability of industrial statistics. These include the following:

i. Index numbers rather than monetary values should be used to present industrial production volume measures.
ii. Index numbers should be presented up to one decimal place.
iii. Long and coherent time series, preferably covering at least five years, should be provided to users.
iv. Product groups or industries that significantly contribute to monthly movements in the IIP should be highlighted in the dissemination.
v. Data should be made available to all users simultaneously to ensure equal access.
vi. Presentation and reporting practices should remain consistent over time.
vii. Industry-wise weights used in the index should be made available to users.
viii. Data releases should be accompanied by methodological explanations and relevant advisory notes.

4.130. All the above recommendations are already being followed in the monthly IIP press releases issued by the MoSPI, and the corresponding data and methodological details are also made available on the official website of the Ministry.

4.131. In addition, indices are disseminated at the NIC 2-digit level and placed in the public domain. The data are also made available in downloadable formats such as Excel, on the website of the MoSPI,

thereby facilitating wider access and use by researchers, analysts, and other stakeholders. Such disaggregation enhances the analytical value of the dissemination framework by enabling users to better understand the sectoral sources of industrial growth and short-term fluctuations in production.

4.132. The item group level indices and production data for IIP is also disseminated to the users of such data through the microdata portal of the Ministry.

Deliberations and Recommendations of the TAC-IIP

4.133. The TAC-IIP deliberated on the dissemination framework of the all-India with the objective of improving transparency, analytical usefulness, and accessibility of industrial statistics. The Committee emphasized that dissemination practices should align with international statistical standards while also addressing the evolving needs of policymakers, researchers, and other users of industrial data.

4.134. **The TAC-IIP recommends that the existing practice of monthly dissemination of the IIP through official press releases and publication on the website of the MoSPI be continued. It underscored the importance of providing indices at multiple levels of disaggregation, including sectoral indices, industry-wise indices at the NIC 2-digit level, and use-based category indices, so that users can effectively analyse trends in industrial production.**

4.135. The **TAC-IIP further recommends that data should continue to be made available in user-friendly formats such as Excel to facilitate research and analytical work. In addition, the Committee suggested that appropriate mapping between industrial classification (NIC) and use-based categories be maintained and made publicly available to improve interpretability of the data.**

4.136. The Committee also deliberated on the dissemination of item group level indices and production data. It was opined that the dissemination of item group level production data would infringe upon the privacy norms of the data especially in cases where the number of factories in the panel are less.

4.137. In this regard the TAC-IIP also noted that the Section 9 (4) of the Collection of Statistics Act states that "*All statistical information published by any agency shall be arranged in such a manner so as to prevent any particulars becoming identifiable by any person (other than the informant by whom the particulars were supplied) as the particulars related to the informant who supplied it, even through the process of elimination…..*".

4.138. In light of these observations and the long-standing tradition of disseminating this data, the **TAC-IIP recommends that dissemination of the item group level production data for IIP may be reviewed by MoSPI, in the light of its latest dissemination policy.**

COMPUTATION METHOD OF LINKING FACTOR

Definition and Rationale

4.139. Any base year revision of a statistical time series often poses the difficulty of maintaining comparability over the time periods as older series gives way to newer base series that is started for

subsequent year. Linking factor provides a way of technical adjustment to connect the two series with different base years, thereby ensuring continuity and comparability of the time series. When the base year of an index such as the IIP is revised, changes are typically introduced in the item basket, weighting structure, and data sources to better reflect the current industrial structure. As a result, the index values of the new series cannot be directly compared with those of the earlier series.

4.140. The linking factor typically serves as a conversion coefficient that enables the old series to be expressed in terms of the new base series, thereby maintaining a continuous historical time series. Without such an adjustment, revisions in base year would introduce structural breaks, limiting the usefulness of the data for long-term analysis.

4.141. In practice, the linking factor is computed by comparing the index values of the old and new series over a common reference period. The resulting ratio is then used to convert the old series into the new base, thereby creating a consistent and continuous time series for analytical and policy purposes.

Current practice

4.142. To maintain continuity in the time series of the IIP, MoSPI provides linking factor to enable comparison between successive base year series. Historically, MoSPI has used the arithmetic conversion method for deriving linking factors between successive base year series. Under this approach, the linking factor is calculated as the ratio of the average index of the old series to that of the average index of new series during a common reference period. The derived factor can then be used to convert the index values of the old series to the level of the new series, thereby maintaining comparability over time.

4.143. This method has been used to establish linking factors between successive IIP series – for example, when the base year was revised from 1980-81 to 1993-94 and 1993-94 to 2004-05. The linking factors were computed at the sectoral level, namely Mining, Manufacturing, and Electricity, and for the General Index. However, the linking factor for linking the 2004-05 to 2011-12 was not released. The computation of linking factors at lower levels of IIP were left to the discretion of the users.

Methodology: Arithmetic Mean (AM) and Geometric Mean (GM)

4.144. Two commonly used approaches for computing linking factors are the Arithmetic Mean (AM) and the Geometric Mean (GM) methods. Both approaches are used to derive a conversion factor that enables the index values of an earlier series to be expressed on the base of a new series.

<u>Arithmetic Mean Method</u>

4.145. The arithmetic mean represents the average of index values over a given period. In this method the linking factor is computed by dividing the average indices of the outgoing series by the average indices of the new series for the same period. This produces a conversion coefficient that allows the indices of the previous series to be adjusted to the new base. For example, for linking the 2004-05 series with the 2011-12 series, the annual average index in the 2004-05 series for the year 2011-12 will be

divided by the annual average indices of the 2011-12 series in the base year (the annual average index in the base year is 100 by definition).

4.146. The formula for linking factor using the AM method explained above is expressed in the following formula:

$$Linking\ Factor = \frac{Average\ Index\ (AM)\ of\ the\ old\ series\ during\ new\ base\ year}{Average\ Index\ (AM)\ of\ new\ series\ during\ new\ base\ year}$$

4.147. The linked series is obtained by dividing the indices of old series with the coefficient (linking factor) calculated above.

Geometric Mean Method

4.148. The GM is another measure of central tendency that is particularly useful when dealing with ratios or multiplicative relationships. In this approach, the linking factor is computed by dividing the GM of the indices for the outgoing series by the GM of the new series for the same period. The formula for linking factor using the GM method explained above is expressed in the following formula:

$$Linking\ Factor = \frac{GM\ of\ the\ old\ series\ during\ new\ base\ year}{GM\ of\ new\ series\ during\ new\ base\ year}$$

4.149. Similar to the AM approach, the index values of the old series are divided by the above linking factor to get the linked series.

4.150. Based on the above methodologies, the linking factors have been calculated for linking the 2004-05 series of IIP with the 2011-12 series and the results are presented in table 4.4 below.

Table 4.4: Comparison of Linking Factors for linking 2004-05 with 2011-12 series

Sector	Linking Factor through AM	Linking Factor through GM
Mining	1.285	1.280
Manufacturing	1.810	1.807
Electricity	1.493	1.492
General Index	1.703	1.700

4.151. The table 4.4 demonstrates that the linking factors calculated using the Geometric Mean method and that using the Arithmetic Mean yields almost similar results.

Deliberations and Recommendation of TAC-IIP

4.152. The TAC-IIP examined the methodology for computing linking factors to ensure continuity and comparability between successive IIP series with different base years. The Committee reviewed the alternative approaches for deriving linking factors, particularly the Arithmetic Mean (AM) and Geometric Mean (GM) methods, and assessed their implications for maintaining consistency in the historical time series.

4.153. The Committee also noted that the Ministry of Statistics and Programme Implementation (MoSPI) has historically followed the arithmetic mean method for deriving linking factors in earlier base year revisions. However, the TAC-IIP observed that the use of the geometric mean (GM) for deriving linking factors in the Index of Industrial Production (IIP) offers several important advantages.

4.154. Since the IIP is based on relatives—i.e., ratios of current output to base period output—the geometric mean is conceptually more appropriate as it reflects multiplicative or compound growth rather than simple additive changes. It also helps prevent extreme values from distorting the results, ensuring that unusually large increases or decreases in indices do not skew the overall linking factor. Further, by preserving proportional relationships across different items, the geometric mean supports a more accurate and consistent linking of series when base years are revised leading to smoother and more reliable estimates of time.

4.155. Considering the above, the **TAC-IIP recommends the use of Geometric Mean method for linking the 2011-12 series of IIP with the new 2022-23 series.**

4.156. The TAC-IIP also considered the level at which the linking factors are to be calculated. It noted that during earlier base year revisions, MoSPI had provided linking factors at the sector level and at the general index levels only. This was done taking into consideration methodological and practical limitations.

4.157. The process of linking involves combining indices from two base periods using common items or overlapping data. At lower levels of disaggregation, the item basket changes significantly between base years due to the inclusion of new products and the dropping of obsolete ones. Therefore, deriving linking factors at lower level may not yield reliable results. Further, the changes in the industry classifications used during the two base years also change posing another challenge in deriving comparable data for linking the two series.

4.158. Limiting linking factors to higher levels of aggregation strikes a balance between methodological soundness and practical usability, ensuring that the spliced IIP series remains consistent, stable, and interpretable.

4.159. Thus, **the TAC-IIP recommends calculating the linking factors at the aggregated levels only, i.e., at the level of General Index and at the Sectoral levels only.**

4.160. Since there has been an expansion in the scope of IIP in the new series with base year 2022-23, there may not be a direct correspondence between the two series. The new sector, namely water supply, sewerage & waste management, in the all-India IIP with base year 2022-23, does not have any relevance in the earlier series. Hence, linking factor for the same cannot be computed. Although the linking factor for the general index is being provided, users may exercise caution while comparing the indices of the two series.

CHAPTER V
STATE LEVEL INDEX OF INDUSTRIAL PRODUCTION

This chapter reviews the present status of compilation of State level Indices of Industrial Production in India, including the methodologies currently adopted by States and Union Territories. It notes wide variations in compilation practices and make suggestions for homogenizing the methodologies in alignment with the practices at the national level. It also suggests two-way exchange of information to improve compilation and reduce its burden

5.1. While the all-India IIP provides a broad overview of industrial performance, it often masks significant inter-state variations in industrial structure, growth patterns, and cyclical trends. Region specific variations in industrial structure, growth patterns, and cyclical trends are best identified through the compilation of State-level IIP. This enables policymakers to better understand these regional differences, identify emerging growth centres, and detect sector-specific slowdowns or emerging bottlenecks within States in a timely manner. This becomes particularly relevant in a diverse economy like India, where industrial development is unevenly distributed across regions. The TAC-IIP noted that Eurostat publishes IIP for all 27 States of the European Union and analogically, it is desirable that IIP based on a homogenous methodology and frequency is brought out for all 36 States/UTs of the Indian Union.

5.2. State-level IIP can then strengthen evidence-based policymaking and supports more targeted interventions. State governments can use such an index to monitor the effectiveness of their industrial policies and infrastructure investments. It also aids in better planning and resource allocation by providing timely signals on industrial momentum. For the Central Government, State-level IIP data can improve coordination with States, facilitate more nuanced macroeconomic assessments, and enhance the accuracy of national accounts and forecasting exercises.

Current Status of Compilation of State-level IIP

5.3. At present, a number of States have initiated the compilation of State level Index of Industrial Production (IIP) with base year 2011-12. The methodology followed by States broadly aligns with the national framework, though with certain variations depending on data availability and institutional capacity. The compilation of State level IIP is generally based on sectoral estimates derived from Gross State Domestic Product (GSDP), along with detailed industrial data obtained from the Annual Survey of Industries (ASI) at the State level, particularly at the NIC 2-digit and 3-digit levels. These data sources are used to construct weights and to capture the industrial structure specific to each State.

5.4. The frequency of the State-level IIP are not uniform at present. While most of the States are compiling their IIP at a monthly frequency, some others are compiling it on a quarterly basis. The timelines for release of these data also varies over the States. In most of the cases, the IIP is released with a lag of more than 45 days for the end of the reference month. IIP being a short-term indicator, this lag has an adverse effect on the efficacy of the indicator.

5.5. Overall, while significant progress has been made in the compilation of State level IIP, variations in methodology and data sources across States highlight the need for greater standardization and alignment with the national framework to enable meaningful inter-state comparisons.

Deliberations and Recommendation of TAC-IIP

5.6. The TAC-IIP deliberated on the need for developing a robust and comparable framework for the compilation of State level IIP, recognizing its importance for understanding regional industrial performance and supporting evidence-based policymaking at the State level.

5.7. The Committee noted that while several States have initiated the compilation of State level IIP, there exist significant variations in methodology, data sources, and level of disaggregation. Such variations limit the comparability of indices across States and with the All-India IIP.

5.8. The TAC-IIP also recognised requirement for statistical capacity development of States to enable them to bring out timely and reliable estimates of different indicators. It understood that while some States had a robust statistical mechanism, others are still in a developing stage and lack in resources, both in terms of manpower and other resources.

5.9. In the matter of coverage of the State-level IIP, The TAC-IIP observed that the scope of State-level IIP should be aligned with that of the all-India IIP. Thus, the new sectors being brought into the new series of all-India IIP should be replicated at the State level too. This is primarily because these sectors have a more important policy bearing at the State-level, such as the case of inclusion of minor minerals.

5.10. After detailed deliberations, **the TAC-IIP recommended the following:**

i. **State level IIP should align with the all-India IIP in terms of methodology and scope. The methodology for selection of item basket and weights should be in line with that for the all-India IIP. The coverage of State-level IIP include the sectors covered in the all-India IIP.**

ii. **For the drawing of item basket, the pooled ASI data (for both Central samples and State samples) should be used ensuring a robust database for the selection of item basket and the weighting diagram of the State-level IIP. In the event where the State ASI is not available, the IIP item basket and weights for the State may be drawn using the Central data only.**

iii. **The classifications used in the all-India IIP, namely NIC 2025 and the Use-Based Classifications, should also be used in the State-level IIP. This would ensure consistency and comparability across States.**

iv. **The data collected by MoSPI for the common items pertaining to the State may be shared with them for ease of data collection. This would also reduce the respondent burden of the data provider.**

v. **Regular capacity building initiatives may be undertaken by MoSPI to enhance the statistical capabilities of the State Governments.**

CHAPTER VI
SUBSTITUTION AND AUGMENTATION OF FACTORIES

This chapter examines the causes and implications of non-response in factory reporting, including the significance of closed or persistently non-responding units. It outlines the methodology and operational procedures for substitution/ augmentation of factories which will considerably help in improving the recency of the index in capturing production more appropriately amid rapidly changing industrial structures.

6.1. The compilation of IIP relies on monthly production data received from a representative set of factories selected in the base year. This panel of factories remains fixed throughout the base year as per the methodology of the Laspeyres' fixed base index. There are instances of temporary non-response from factories where the factories fail to report their production for various reasons, like temporary/ maintenance shutdowns, delays in reporting, etc. The methodology for dealing with such temporary non-responses have been elaborated in Chapter IV.

6.2. Over time certain factories in this panel experience operational disruptions like permanent closure or a change in the line of production. These disruptions affect the quality and efficacy of the index adversely. If there is significant gap between revisions in base year, these problems aggravate. For example, in the present series of IIP with base 2011-12, the factories that have closed over time have a combined weight of about 8.9% indicating a substantial impact on representativeness of the data being captured.

6.3. This situation poses challenges in maintaining continuity of the IIP series. The Committee noted that continuing with factories that are no longer operational or do not represent actual production, leads to increased dependence on estimation or imputation methods. This dependence may introduce bias which reduces the accuracy and reliability of the index.

6.4. Moreover, the consequent loss of representativeness becomes a major concern. When factories carrying significant weights in the index cease operations or stop reporting, the existing panel may no longer reflect the actual industrial structure. The index then diverges from the true pattern of industrial production over time.

Methodology for Substitution of Factories

6.5. To address these challenges, the TAC-IIP considered substitution of the factories that are either permanently closed or has changes its line of production. It felt that this substitution may also be resorted to when there is prolonged non-response due to other reasons.

6.6. The TAC-IIP was of the view that IIP being a volume index weighted by the GVA or GVO shares of the base year, inaccuracies may creep into the IIP compilation framework where factories change their line of production or shutdown altogether. In times when technologies and supply chains

change frequently, it is important to have flexibility in correctly capturing the production structures without compromising on data integrity.

6.7. It is often observed that production lines undergo changes where near substitutes of products replace the older varieties with better qualities and higher value additions. This results in factories changing their line of production and even shutting down. Maintaining a fixed panel of factories without substituting for the closed factories would fail to capture the true dynamics of the industrial economy.

6.8. However, substituting factories in a Laspeyres' fixed base framework raises important methodological concerns, namely:

- The appropriate timing for undertaking substitution,
- The criteria for identification of substitute factories, and
- The method for computation of indices post-substitution.

When will substitution be done?

6.9. Substitution of factories is to be undertaken based on careful monitoring its responding status. It is important to set a rule-based methodology for substitution of the factories to avoid arbitrary decisions in this regard.

6.10. The substitution of a factory in the IIP framework is to be undertaken based on continuous monitoring of the reporting behaviour and operational status of the selected units. The need for substitution arises when there are persistent indications that a factory is no longer contributing to the production of the selected item.

6.11. The TAC-IIP was of the view that a largely rule-based process of substitution of factories will add to the credibility and integrity of the IIP data. It suggested that the substitution could typically be triggered under the following conditions:

- If a factory reports zero production for three consecutive months, raising concerns regarding its operational status.
- If production data is not reported for three continuous months, indicating possible non-response or discontinuation of activity.

6.12. Upon occurrence of such cases, the source agency is required to verify the actual status of the factory. This verification includes:

- Whether the zero or non-reporting is due to temporary factors such as maintenance shutdowns, seasonal closures, or other short-term disruptions; Or
- Whether the unit is still operational; Or
- Whether it has changed its line of production.

6.13. Substitution is not to be undertaken when the disruption in response from the factory is due to temporary reasons as in the first case above. This approach ensures that short-term fluctuations in industrial activity are accurately reflected without altering the composition of the sample.

6.14. However, if it is confirmed that the factory has permanently closed or has changed its production line such that it no longer produces the selected item of the item basket for which it was providing data, the process of substitution is initiated. This ensures that the reporting panel remains representative of current industrial production and that the index continues to reflect actual production dynamics.

Identifying Factories for Substitution

6.15. The identification of suitable factories for substitution is a critical step to ensure that the integrity and representativeness of the IIP is not compromised. Substitute factories are to be selected from the data for the latest available ASI year, ensuring that the replacement reflects the current industrial structure.

6.16. The selection of substitute factories is to be guided by the following criteria:

- The substitute factory must produce the item whose production was reported by the original factory.
- The GVA or GVO of the substitute factory should be comparable and as close as possible to that of the original factory. This ensures that the relative importance and weight of the production unit are maintained in the index.
- There should be a common operational period of at least 12 months between the old factory and the substitute factory. This overlapping period is essential for deriving a coefficient, which facilitates a smooth transition from the old unit to the new one.

Computation Methodology in Case of Substitution of Factories

6.17. In cases where a factory is substituted, it is essential to ensure continuity and comparability of production data within the IIP. Since the new factory may differ in scale or production capacity from the original factory, a direct replacement without adjustment may introduce distortions in the index. To address this, a splicing technique could be used where a coefficient called the *Adjustment Factor for Substitution* (AFS) can be computed and applied to the production data of the substitute factory.

6.18. This AFS is derived using the production data of the old and the new factories over a common operating overlapping period of 12 months. It is calculated as the ratio of the average production of the new factory to the average production of the old factory during this overlapping period.

$$AFS = \frac{Average\ Production\ of\ New\ Factory\ during\ 12-month\ overlap}{Average\ production\ of\ Closed\ factory\ during\ the\ 12-\ month\ overlap}$$

6.19. The adjustment factor thus calculated is then used to adjust the production of the new/ substitute factory using the formula

$$Adj\ Prod\ of\ New\ Factory\ for\ month\ \boldsymbol{m} = \frac{Reported\ prod\ of\ new\ factory\ for\ month\ \boldsymbol{m}}{Adjustment\ Factor\ for\ Substitution\ (AFS)}$$

6.20. After substitution, the production of the substitute factory replaces the old factory in the dataset. However, for each subsequent month, the reported production of the substitute factory is to be first adjusted using the AFS before aggregation with the production of the other factories in the panel. This ensures that the transition from the old factory to the new one does not introduce any distortion in the series.

6.21. The adjusted production values are then used in the compilation of the IIP following the Laspeyres' fixed base index methodology, thereby maintaining continuity, consistency, and comparability in the index over time.

Operational Aspect of Substitution

6.22. Substitution of a factory may be implemented once the closure/ change in production-line is officially confirmed by the source agency. After confirmation, data is to be collected from the replacement factory for a period of 12 months of operative overlapping period for the calculation of AFS. This process will require a few months during which period '0' or imputed data is to be used for the factory.

6.23. For this entire process to work efficiently, it is imperative for ESD of MoSPI to maintain a frame of factories from ASI of the latest year with complete details of the production lines of the factories and the location/ contact details. This will ensure that substitute factories are identified immediately for sharing with the source agencies and the number of months with imputed or '0' data is restricted to the minimum.

Augmentation of Factories

6.24. In a fixed base framework, the panel of factories is decided during the base year and they are selected as per their share in the GVO of the items selected in the item basket. However, there are situations where significantly large factories produce an item is commissioned during the currency of the IIP series. The present methodology for IIP does not permit the inclusion of such factories into the panel of factories. However, such situations may lead to non-representativeness of the industry.

6.25. Keeping this in view, the TAC-IIP deliberated on the appropriateness of inclusion of such factories into the panel of factories. Though the Laspeyres' fixed base framework does not permit the inclusion of such factories, in order to capture the true movement in the sector, such measures may be appropriate, especially in cases where the newly commissioned factories contribute substantially towards the total production of the product.

6.26. The methodology for incorporating the new factories into the IIP panel of factories would be similar to the methodology used for substitution. The steps involved are stated below:

- Identification of large factories not in the frame of factories of IIP
- Collection of 12-months data previous to the month in which the factory is to be included. This is to be used for calculation the coefficient for inclusion of the factory.

– Computation of index using the data from augmented factory

Identification of factories to be augmented

6.27. The identification of the factory should be initiated after the release of the ASI data every year. From the data, the factories reporting production of a certain item but not included in the panel of factories for IIP should be identified. In this regard, it should be ascertained that the total production of the factory is substantially high so as to merit such inclusion. The identification of factories for augmentation may also be done by the concerned source agency. This identification of factories should be done in a rule based objective manner.

Collection of 12-months historical data

6.28. Subsequent to identification of the factory to be augmented, production data for the previous 12-months is to be collected from the factory. This is to be used to calculate a coefficient for adjusting the production of the item for which the factory is added.

Computation Methodology in case of Augmentation of Factories

6.29. In cases where a factory is augmented, it is essential to ensure comparability of production data within the IIP. Since the new factory will be larger than the ones already in the panel, directly adding the production will introduce distortions in the index. Further, the factory that is augmented is also not operational during the base year, hence adding the base year production into the framework would not be possible. To address this, a splicing technique is to be used where a coefficient called the *Adjustment Factor for Augmentation* (AFA) is to be computed and applied to the base year production of the item.

6.30. This AFA is derived using the production data of the item without including the augmented factory and the production data of the item after including the augmented factory over a period of 12 months. It is calculated as the ratio of the average production of the item before augmentation and the average production of the item after augmentation during the previous 12 months.

$$AFA = \frac{12-month\ Avg\ Prod\ of\ item\ after\ adding\ new\ factory}{12-month\ Avg\ Prod\ of\ item\ without\ adding\ new\ factory}$$

6.31. The AFA thus calculated, is to be used to adjust the base year production of the item using the formula

$$Adj\ Base\ Year\ Production = Base\ Year\ Production * Adjustment\ Factor\ for\ Augmentation\ (AFA)$$

6.32. This adjusted base year production is to be used for the compilation of the index of all subsequent months after augmentation.

6.33. To maintain the integrity of the IIP series and to capture the dynamism in the economy, the TAC-IIP was of the view that augmentation of factories should be undertaken only in extreme circumstances on rarest of rare occasions.

Recommendations of the TAC-IIP

6.34. The TAC-IIP undertook detailed deliberations on the need for substitution and augmentation of factories in the compilation of the IIP. The Committee recognized that the fixed panel approach,

while ensuring stability, may over time lead to a decline in representativeness due to factory closures, changes in production lines, and structural transformation in the industrial sector.

6.35. After careful consideration**, the TAC-IIP recommends the following:**

i. **Adoption of a formal substitution framework, whereby factories that are permanently closed or have changed their production line are substituted with suitable alternatives producing the same item.**

ii. **Substitution of factories is to be undertaken as per the methodology described in para 6.15 to 6.23**

iii. **Augmentation of factories should be undertaken only in extreme circumstances based on rule based objective criteria.**

iv. **Augmentation is to be done as per the methodology described in para 6.27 to 6.32.**

CHAPTER VII
CHAIN-BASED INDEX OF INDUSTRIAL PRODUCTION

This chapter presents the background and objectives of introducing a chain-based Index of Industrial Production and reviews international recommendations on chain linked indices along with their limitations. It discusses the need for adopting chain-based indices in the Indian context, taking into account data availability and finalization lags. The chapter outlines the proposed methodology for compiling a chain linked IIP, including annual revision and distribution of weights, computation of indices from item level to sectoral and overall indices, and the associated revision calendar.

7.1. Traditionally, the IIP has been compiled using a fixed-base Laspeyres' framework, wherein sectoral and industry weights remain constant until the next base year revision. While this approach provides stability and simplicity, it becomes less representative over time as the structure of industrial production evolves.

7.2. Industrial production is inherently dynamic, with shifts driven by changes in demand patterns, technological advancements, policy interventions, and evolving supply chains. Some industries expand rapidly, others decline or become obsolete, and new industries or product lines emerge. In such a scenario, fixed weights gradually lose relevance, leading to substitution bias and distortions in measured growth. Over time, the index suffers from weight obsolescence, reducing its ability to accurately reflect current industrial conditions.

7.3. In this context, the chain-based approach has been considered as a potential alternative. Conceptually, a chain-based index allows for periodic updating of weights, typically on an annual basis, thereby capturing changes in production patterns more effectively. By incorporating recent information into the weighting structure, the chain-based method improves the accuracy and relevance of the index and provides a more realistic measure of industrial growth.

International Recommendations on Chain-Linked Indices

7.4. International statistical standards and manuals, such as the IRIIP, 2010 and the OECD Manual on Compilation of an Index of Service Production (2007), recommend the use of chain-linked volume indices for short-term economic indicators like the IIP. Similar views have also been expressed in Eurostat's work on short-term business statistics and chain linking. Many industrialised countries that include the United States, United Kingdom, Australia, and members of the European Union, have transitioned to disseminating chain-based indices for measuring short-term output.

7.5. This preference for chain-based indices is based on the advantages listed below:

i. Enhanced representativeness of industrial structure – Chain linking permits more frequent updating of weights, ensuring that the IIP reflects evolving changes in the composition of industrial output more accurately.

ii. Mitigation of substitution bias – Regular updating of weights enables the index to capture shifts in production patterns across industries and products, thereby reducing distortions arising from outdated weights.

iii. Improved accuracy in measurement of growth – By using relatively recent weights, chain-linked indices provide more precise estimates of short-term movements in industrial activity.

Limitations of Chain-Linking

7.6. The chain-linking approach, while offering advantages in terms of improved representativeness and accuracy, is associated with certain limitations. One of the primary drawbacks is the lack of additivity, wherein higher-level or aggregate indices are not equal to the sum of their component indices. In the context of the IIP, this implies that indices at lower levels of aggregation, such as NIC 4-digit, do not aggregate consistently to the indices at higher levels such as NIC 3-digit or 2-digit, thereby complicating hierarchical analysis.

7.7. Another limitation arises from the possibility of index drift. In situations where prices or quantities fluctuate over time and subsequently return to their original levels, the chain-linked index may not revert to its initial value due to the compounding effect of chaining. This phenomenon is particularly evident in cases of oscillating or "bounce" movements in relative prices or quantities across periods.

7.8. It is, however, recognized that the underlying economic forces driving long-term changes in production structures, such as technological progress, innovation, and rising incomes, are generally unidirectional and do not reverse frequently. As a result, the practical significance of index drift may be limited in many real-world scenarios.

7.9. Further, while chain-linking enhances temporal accuracy by incorporating more recent weights, it may reduce temporal comparability. The frequent updating of weights introduces complexity in comparing indices across time periods or across sub-sectors, as the underlying weighting structure changes over time. This can make interpretation and analysis more challenging, particularly for long-term comparisons.

Need for Introducing Chain-Linked Indices in India

7.10. Under the current fixed base (series with base year 2011–12) methodology of the IIP used in India, higher-level indices are constructed by aggregating lower-level indices, with weights reflecting the industrial structure at various levels of classification such as NIC 2-digit, 3-digit, and 4-digit. For instance, the overall IIP is derived as a weighted aggregation of sectoral indices for Mining, Manufacturing, and Electricity, where the assigned weights represent their relative importance in the base year.

7.11. However, when the base year is not revised frequently and the weights remain fixed over an extended period, the index gradually becomes less representative of the actual economic structure. Over

time, structural shifts occur due to technological advancements, policy changes, and evolving demand patterns, leading to expansion in some industries and contraction in others.

7.12. An analysis of trends in sectoral and NIC 2-digit level weights in India (presented in Table 7.1) over the period 2011–12 to 2021-22 indicates significant changes in the distribution of industrial activity. Certain industry divisions like Manufacture of coke and refined petroleum products (NIC 19), Manufacture of basic metals (NIC 24) have shown significant fluctuations in weight over the years. These changes are likely to be more pronounced at more disaggregated levels, highlighting the declining representativeness of fixed weights as the distance from the base year increases. Thus, continuing with a fixed weights framework would be unable to reflect the changing structure of economy.

7.13. In this context, frequent revision of the base year is necessary to update weights and incorporate new and emerging products. However, an alternative approach, as recommended in international statistical practices, is the adoption of a chain-linking methodology. Under this approach, weights can be updated on a regular basis, typically annually, thereby ensuring that the index remains aligned with the current industrial structure. Additionally, the product basket can be revised periodically, such as every five years, to reflect the evolving composition of industrial output. It thus provides a more dynamic and accurate measure of industrial production, improving the relevance and reliability of the IIP as a key indicator of economic activity.

Table 7.1: Trends in weights at Sectoral and Two-digit NIC level during 2011-12 to 2022-23

NIC 2 digit	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
10	5.30	5.47	5.59	5.44	5.69	6.40	6.40	6.26	6.62	6.98	5.85	5.90
11	1.04	1.19	1.13	1.12	1.20	1.07	1.12	1.26	1.19	1.05	0.86	1.16
12	0.80	1.06	0.99	1.11	1.27	1.05	0.98	1.02	1.05	0.94	0.73	0.80
13	3.29	4.78	4.58	4.26	4.12	4.08	4.10	4.45	4.21	3.78	4.05	3.40
14	1.32	1.58	1.91	1.75	2.07	1.93	2.02	2.15	2.32	1.73	1.78	2.05
15	0.50	0.53	0.67	0.65	0.72	0.71	0.70	0.77	0.77	0.62	0.60	0.63
16	0.19	0.22	0.23	0.26	0.28	0.28	0.25	0.28	0.30	0.24	0.26	0.25
17	0.87	0.88	1.13	1.06	1.06	1.03	1.25	1.44	1.45	1.26	1.23	1.43
18	0.68	0.78	0.56	0.83	0.81	0.70	0.72	0.73	0.69	0.43	0.40	0.53
19	11.77	10.41	8.95	10.73	10.80	10.84	9.15	4.19	2.77	3.53	5.28	7.18
20	7.87	7.36	7.29	6.82	8.98	8.38	8.29	8.86	9.42	9.84	9.15	8.13
21	4.98	5.06	5.65	5.81	6.07	6.00	5.88	6.54	6.95	7.64	7.08	6.06
22	2.42	2.56	3.37	3.24	3.29	3.38	3.09	3.47	3.85	3.97	3.60	3.52
23	4.09	4.42	3.97	4.21	3.73	4.22	4.41	4.68	4.69	4.51	3.98	3.66
24	12.80	8.46	11.02	8.99	6.29	6.84	8.37	9.37	8.56	11.44	14.04	9.56
25	2.65	3.02	2.71	2.59	2.63	2.55	2.52	2.57	2.63	2.30	2.22	2.58
26	1.57	1.74	1.92	1.69	1.91	1.98	1.86	1.94	1.83	1.95	1.87	2.17
27	3.00	3.33	3.14	2.89	3.24	3.19	3.08	3.20	3.09	2.88	2.67	3.30
28	4.77	5.47	4.29	4.73	4.79	4.80	5.32	5.24	5.20	5.27	4.64	5.22
29	4.86	5.84	4.93	6.16	6.85	6.47	5.99	7.01	6.12	5.61	5.57	6.67
30	1.78	2.05	1.98	2.03	2.05	2.05	2.25	2.65	2.97	2.38	2.05	2.17
31	0.13	0.24	0.21	0.24	0.22	0.20	0.23	0.27	0.30	0.28	0.27	0.29
32	0.94	1.15	1.15	1.44	1.17	1.36	1.37	1.33	1.53	1.41	1.57	1.57
Mining	**14.37**	**14.10**	**13.36**	**12.82**	**10.86**	**11.14**	**10.39**	**10.70**	**10.36**	**9.26**	**10.33**	**11.36**
Manufacturing	**77.63**	**77.60**	**77.39**	**78.04**	**79.25**	**79.53**	**79.35**	**79.67**	**78.53**	**80.05**	**79.75**	**78.18**
Electricity	**7.99**	**8.30**	**9.25**	**9.15**	**9.90**	**9.33**	**10.26**	**9.63**	**11.11**	**10.69**	**9.92**	**10.45**

Note: The figures presented in this table are based on NAS 2011-12 series GVA and ASI data. The weights for the year 2022-23 are tentative and may vary due to enhancement in the scope for IIP series 2022-23.

Finalization Lags in the Indian Context

7.14. In the Indian statistical system, the compilation of a chain-based Index of Industrial Production (IIP) is constrained by the availability of timely and finalized data required for deriving weights. The two primary data sources for constructing the weighting structure are the NAS for sectoral GVA and the ASI for detailed industry-level GVA. However, both these sources are subject to inherent time lags in data finalization.

7.15. For sectoral weights, the NAS provides GVA estimates, but these are finalized with a lag of approximately two years. For instance, (illustrated for FY 2022-23):

First Advance Estimate: 6th January 2023

Second Advance Estimate: 28 February 2023

Provisional Estimate: 31 May 2023

First Revised Estimate: 28 February 2024

Final Estimate: 28 February 2025

7.16. Similarly, for the manufacturing sector, the ASI provides detailed GVA at NIC 2-digit, 3-digit, and 4-digit levels, which is essential for distributing weights across industries. However, ASI data are typically released with a lag of about one and a half years. For example, ASI GVA for the year 2022–23 became available only around September–October 2024.

7.17. These inherent delays in the availability of finalized NAS and ASI data pose significant challenges for the implementation of a chain-based IIP framework, which requires frequent updating of weights. The time lag between the reference period and the availability of reliable data must therefore be carefully accounted for in designing a feasible and robust chain-linking methodology in the Indian context.

Methodology of Chain-Linked IIP

7.18. The chain-linked approach to the Index of Industrial Production (IIP) involves updating the weights on a regular basis, typically annually, to better reflect the evolving structure of industrial production. Under this method, each year's index is calculated using the weights of the immediately preceding year. For example, the comparison between 2011-12 and 2012-13 uses weights from 2011-12, between 2012-13 and 2013-14 uses weights from 2012-13, and so on. This ensures that the weights remain contemporaneous and closely aligned with the actual production structure.

7.19. The core principle of chain-linking is the computation of a Chain Link (CL) for each year, which represents the growth between two consecutive periods using the previous year's weights. The index for any given year is then derived by successively multiplying these chain links with the index of a reference year. Formally, the index for year *t* is expressed as:

$$I_t = CL_t \times CL_{t-1} \times CL_{t-2} \times CL_{t-3} \times CL_{t-4} \times CL_{t-5}$$

7.20. The chain terminates at a reference year (for example, t−5), for which the index is conventionally set to 100. This cumulative multiplication ensures continuity in the index series while incorporating updated weights at each step.

7.21. Since short-term IIP is compiled at a monthly frequency, whereas weights are available on an annual basis, specific techniques are required to integrate high-frequency data with annual weights. Three commonly used methods are as follows:

i. The Annual Overlap Technique involves weighting the monthly or quarterly indices using the annual average weights of the previous year and expressing them relative to the weighted annual average index of that year. This method is generally preferred as it ensures consistency between high-frequency indices and their corresponding annual aggregates.

ii. The One-quarter or one-month overlap method also uses the previous year's annual weights but links the current period's index to the last quarter or month of the previous year. The resulting chain link is then multiplied by the index of the last period of the previous year to obtain the new index.

iii. The Over-the-Year Technique compares each month or quarter with the corresponding period of the previous year, using the previous year's weights. The index is then obtained by multiplying the derived chain link with the index of the corresponding period in the previous year.

7.22. These methodologies provide alternative ways to operationalize chain-linking in the context of high-frequency industrial indices, each with its own advantages depending on data availability and desired consistency properties. The TAC-IIP was of the view that the annual overlap technique may be simpler for computation and offer better time consistency over one-quarter overlap or the over-the-year technique.

Methodology for Annual Revision of Weights

Distribution of weights

7.23. Taking into account international practices, data availability constraints, and the deliberations of the TAC-IIP, the following approach is to adopted for the annual revision and distribution of weights in the compilation of a Chain-Linked IIP.

7.24. Under this methodology, sectoral and industry-level weights are revised annually, typically from April of each financial year, using the latest available estimates of GVA from the NAS and the ASI. These weights are updated even if the underlying data are not final, ensuring that the index reflects the most recent structure of industrial activity.

7.25. The distribution of weights follows a hierarchical framework. At the aggregate level, sectoral weights are to be derived from NAS GVA estimates. This is represented in the formula below:

$$W_{S,t} = \frac{GVA_{S,t-1}}{\sum_S GVA_{S,t-1}}$$

Where,

$W_{S,t}$= Weight of Sector *S* at time *t*

$GVA_{S,t-1}$=GVA as per NAS of sector *S* at time *t-1*

7.26. The industry level weights of the manufacturing sector allocated as per the GVA of these industries in ASI. Here the weights for the manufacturing sector are first distributed at NIC 2-digit level as per the ASI GVA. This is represented in the formula below:

$$W_i = \frac{GVA_{i,t-1}}{\sum_i^n GVA_{i,t-1}} * Weight\ of\ Manufacturing\ sector$$

Where,

$GVA_{i,t-1}$ is the GVA of i^{th} industry Division (NIC 2-Digit) at period *t-1*

n = the number of 2-Digit NIC divisions under the scope of IIP. Here *n*=23

$\sum_i^n GVA_{i,t-1}$ is the sum of GVA of all 2-Digit industries (NIC 10 to 32) at period *t-1*

7.27. In a similar manner the weights for NIC 3 & 4 -Digit Level are calculated. It is to be noted here that the NIC 2-/ 3-/ 4- Digit weights would pertain to the period *t-3* at the initial stage due to the lag in ASI data. The weights would be revised along with the availability of ASI data for the subsequent years. The final industry level weights would be referenced to the period *t-1*. Further, the sector level weights would also undergo changes with the revisions in NAS data for the year.

7.28. For the calculation of weights at the item group level, it is assumed that the relative importance of the items within the industry remains unchanged over time. Thus, the NIC 4-Digit level weights are distributed in the item level in proportion of the original weights of the items. Although, the relative item level weights remain unchanged, the absolute weights change every year due to the change in the higher-level weights.

Computation of Indices

7.29. The computation of indices under the chain-linked IIP framework follows a structured approach involving derivation of weights and aggregation across different levels. As in the case of fixed base indices, this computation process begins for compilation of item group level indices.

7.30. For the purpose of calculation of the item group level indices, the monthly production data is first deflated using a suitable price deflator (PPI/ WPI). The process of deflation is the same as that used in the case of fixed base indices. Then the item group level production relatives are calculated using the following formula.

$$R_{i,t} = \frac{P_{i,t}}{P_{i,0}}$$

Where,

$R_{i,t}$= Relative production of item group *i* at time *t*

$P_{i,t}$= Production (Deflated production where required) of item group *i* at time *t*

$P_{i,0}$= Production of item group *i* in base year

7.31. The item group level indices are then calculated by multiplying the production relatives by 100.

7.32. Since the chain-linked item group level indices are derived by multiplying them with the item group level indices of the previous period, they will remain unchanged for both fixed-base and chain-linked indices. This is demonstrated below:

The chain linked item group level index is calculated as:

$$I_{i,t} = \frac{P_{i,t}}{P_{i,t-1}} * \frac{P_{i,t-1}}{P_{i,t-2}} * \dots \dots * \frac{P_{i,2}}{P_{i,1}} * \frac{P_{i,1}}{P_{i,0}}$$

$$or, I_{i,t} = \frac{P_{i,t}}{P_{i,0}}$$

7.33. Indices at NIC 5-digit level are calculated using weights of period *t–1*:

$$I_m = \sum \frac{I_{i,m} W_{i,t-1}}{\sum W_{i,t-1}}$$

Where,

I_m= Index at NIC 5-Digit level for month *m* with weights for the previous year (*t-1*).

$I_{i,m}$ = the index for the item group *i* in month *m*

$W_{i,t-1}$ = the weight of item group *i* for the period *t-1*

7.34. These indices are then linked with previous year indices using the annual overlap technique.

7.35. The same weighted aggregation method is to be used for calculation of chain-linked indices at higher levels of NIC (4-, 3-, 2-Digits), sectoral levels and the General Index.

Subsequent Revision of Weights

7.36. In line with the internationally recommended methodology for Chain-Linked indices. The weights are to be revised as per availability of the weighting data. As proposed earlier, the weights are to be derived from the latest available NAS and ASI data.

7.37. Thus, the weights at the sectoral levels would be revised as per the availability of the NAS estimates, i.e., the Provisional Estimates (PE) would be used to draw the weights for the sectors initially which would then be revised with the availability of the First Revised Estimates (FRE) and the final sectoral weights would be drawn using the Final Estimates (FE) of NAS.

7.38. The industry level weights would be drawn from the latest available ASI data. Thus, as per the present release schedule of ASI, the initial industry level weights for the period *t* would be from ASI for the period *t-3*. These would be revised first using the ASI for the year *t-2* and then finally using the ASI for the year *t-1*.

Revision Calendar for IIP for Chain-Linked Indices

7.39. With the revisions in weights as described in the above section, the revision calendar for IIP has to be revisited with the computation of chain-linked indices. The implementation of a chain-linked framework for IIP requires a review of the present release calendar for all-India IIP.

7.40. Presently, the all-India IIP with base 2011-12 is being released on the 28th of the month subsequent to the reference month (or the next working day if 28th is a holiday). These estimates are

finalised along with the release of the next month. Given the iterative changes in the weights of IIP essential in the chain-linked framework, further revisions in the IIP would be imperative.

7.41. Under the chain-linked framework, weights are to be revised at the beginning of every financial year, i.e., in the month of April. Since the Quick Estimates (QE) for April would be released in the month of May, these estimates would be released using the sector level weights derived from the Provisional Estimates of the NAS which is also released in May. The industry level weights at this stage would be using the GVA/ GVO data from the latest ASI, which would typically be for the *t-3* period.

7.42. The next revision, i.e., Revised Estimates (RE), would be released in the month following the release of the QE. These estimates would be using the same weighting structure as the QE but the production data would be updated as per the latest data coming from the source agencies. This schedule is similar to that in the fixed base framework.

7.43. With the release of the First Revised Estimates (FRE) of NAS and the release of the ASI for the next year (*t-2*), the weights of IIP would be updated as per these data in the beginning of the next financial year. This update of weights would induce a revision in the IIP – Intermediate Revision (IR).

7.44. The final revision for IIP would be done at the beginning of the financial year following the IR when the Final Estimates (FE) of NAS and the ASI for the *t-1* period become available.

7.45. The revision schedule for IIP under the chain-linked framework is illustrated below using the example for the month of April 2026:

Revision Schedule for IIP for the month of April 2026 under Chain-Linked framework

	To be released	**Weighting data**
Quick Estimates (QE)	May 2026	Sectoral Weights: NAS Provisional Estimates for 2025-26 Industry Level Weights: ASI 2023-24
Revised Estimates	June 2026	Sectoral Weights: NAS Provisional Estimates for 2025-26 Industry Level Weights: ASI 2023-24
Intermediate Estimates	May 2027	Sectoral Weights: NAS First Revised Estimates for 2025-26 Industry Level Weights: ASI 2024-25
Final Revision	May 2028	Sectoral Weights: NAS Final Estimates for 2025-26 Industry Level Weights: ASI 2025-26

Deliberations in the TAC-IIP and its Recommendations

7.46. The TAC-IIP undertook detailed deliberations on the feasibility, advantages, and challenges associated with the introduction of a chain-linked IIP in India. The Committee examined the limitations of the existing fixed-base Laspeyres' framework, particularly the issue of weight obsolescence arising from infrequent base year revisions, and its impact on the representativeness and accuracy of the index.

7.47. During the deliberations, the Committee noted that in a rapidly evolving industrial environment, characterized by technological change, product diversification, and shifting demand patterns, which the fixed weights may not adequately capture. In this context, the chain-linked approach was recognized as a conceptually superior method, as it allows for periodic updating of weights and better reflects recent changes in industrial activity.

7.48. At the same time, the Committee carefully examined the practical challenges involved in implementing a chain-linked IIP in India. These include data constraints arising from time lags in the availability of NAS and ASI data and the iterative revisions over a horizon of two years. The issues related to non-additivity of indices, potential index drift, and complexities in interpretation and dissemination were also discussed. The Committee also considered the need for ensuring consistency with existing statistical systems and maintaining user understanding of the index.

7.49. After iterative discussions, the Committee concluded that the adoption of a chain-linked IIP in addition to the fixed base IIP would significantly improve the accuracy, relevance, and responsiveness of the index, while aligning India's statistical practices with international standards. The Committee noted that introduction of chain-linked IIP would (i) provide the index with annual weights which are more up-to-date and, therefore, more relevant for capturing extant industrial structure, will reduce the need for frequent rebasing revisions, (ii) make every year automatically a link year, reducing the subjective bias in choice of a base year, (iii) allows introduction of new items/ factories on an annual basis to capture the intermittent changes in the product basket/ factory panel, and (iv) five yearly updation of products would allow capturing of emerging products to have an up-do-date item basket. The Committee was of the view that these advantages should override the concerns of lack of additivity, increased variations in data due to drift and temporal inconsistencies in comparisons due to changing weights.

7.50. Thus, **the TAC-IIP recommended the following:**

i. **The chain-linked approach in addition to the fixed-base IIP may be adopted as an improved methodology for IIP compilation, subject to addressing data and operational constraints.**

ii. **The annual overlap technique should be used for linking high-frequency indices with annual weights to ensure consistency in aggregation.**

iii. **Annual updating of weights should be implemented using the latest available NAS and ASI data, even if provisional, to enhance representativeness.**

iv. **A structured revision calendar should be followed to incorporate successive updates in weights. The updation of weights should be undertaken only in the beginning of the financial year to enable a structured transition and ensure comparability.**

v. **The users of the indices should be adequately sensitised about the features of the chain-linked framework and the revision schedules to avoid confusion.**

CHAPTER VIII
ADDITIONAL AREAS FOR BROADENING SCOPE AND OUTREACH OF IIP

This chapter discusses some additional measures envisaged for the broadening the scope of IIP. It discusses the background and objectives of introducing seasonal adjustment to the IIP and reviews international best practices in this area. It also explores the feasibility of developing an index for the unincorporated sector using ASUSE data.

Seasonal Adjustment of IIP

8.1. High-frequency data such as the IIP are often influenced by seasonal and calendar-related effects, including variations in the number of working days, holidays, and festival patterns. These factors can obscure the underlying trend in industrial activity, making it difficult to interpret short-term movements accurately. Seasonal adjustment, therefore, is undertaken to remove such predictable variations and to better capture the underlying economic signal.

8.2. Historically, the National Statistical Office of India has not disseminated seasonally adjusted series for IIP. However, in light of an increasing demand and international recommendations for a seasonally adjusted IIP, the issue was deliberated at length in the TAC-IIP.

8.3. Industrial production is significantly influenced by seasonality and calendar effects. In addition, festivals in India generally do not align with the Gregorian calendar, which poses unique challenges for the seasonal adjustment of industrial production data and their influence on production cannot be overlooked.

International Recommendations

8.4. IRIIP, 2010 states that "*Countries should consider producing and disseminating seasonally adjusted series as an integral part of their long-term programme of quality enhancement of their industrial production statistics*". The OECD and the Eurostat also recommends seasonal adjustment of the IIP series. At the same time, these recommendations emphasise that seasonal adjustment should be undertaken only when there is clear statistical evidence and economic interpretation of the seasonal/calendar effects.

Factors inducing seasonality in data

8.5. Seasonality represents the composite effect of climate and institutional events which repeat more or less regularly every year. Major causes of seasonality include weather, composition of the calendar, decisions on timing and expectations. These causes are mainly exogenous to economic systems but human intervention can modify their extent and nature.

8.6. Other factors that induce seasonality and require adjustment are:

- Calendar Effects: These capture predictable, non-economic fluctuations caused by the way the calendar is organized, like the different number of working days over months, leap years, variations in week days, etc.

- Moving Holiday: These are holidays that occur every year but at different times in the Gregorian calendar. Most of the Indian holidays like, Diwali, Holi, Dussehra, Id-ul-Fitr, etc., are moving holidays.
- Outliers: These are extreme observations that distort seasonal adjustment and require explicit treatment.

Decomposition of Time Series

8.7. In order that the seasonal component may be removed from a time series, it should first be decomposed into its constituting components: the trend cycle (T_t) , the seasonal component (S_t) and the irregular component (I_t). The time series is a function of its constituting components which may be made up of several sub-components. That is

$$Y_t = f(T_t, S_t, I_t)$$

8.8. The two commonly used decomposition models are Additive decomposition model and Multiplicative decomposition model. Several methods have been developed and applied internationally to facilitate seasonal adjustment. The Autoregressive Integrated Moving Average (ARIMA)-based models, specifically, the X-13 ARIMA-SEATS model is more popular in modern seasonal adjustment exercises. This model combines regression-ARIMA (regARIMA) modelling with advanced seasonal and trend extraction techniques. This also offers enhanced diagnostics, improved stability analysis, and greater flexibility.

8.9. Another model popularly used for seasonal adjustment is the TRAMO-SEATS model. This is a fully model based approach where trend, seasonal, and irregular components are extracted as unobserved signals derived from the ARIMA model. While this method offers strong theoretical coherence and statistically optimal filters, it is more sensitive to model specification and less intuitive for non-technical users.

8.10. The TAC-IIP observed that given the IIP's monthly frequency and policy importance, X-13ARIMA-SEATS offers an optimal mix of statistical rigor, operational robustness, transparency, and international comparability. Its ability to model calendar effects, manage revisions, and produce standard diagnostics makes it well suited for seasonal adjustment in line with UN best practices.

Developing Calendar Regressors and Pre-adjustment

8.11. Calendar regressors are explanatory variables used in seasonal adjustment to explicitly capture systematic calendar-related effects that influence a time series but are not part of true seasonality. These regressors quantifies the impact of calendar structure on the observed value of a series and if not modelled, may distort the estimation of seasonal factors.

8.12. Hence, a key step in the methodology for seasonal adjustment is the pre-adjustment for calendar effects which is done using regression-based techniques (regARIMA models). These models explicitly

account for variations arising from number of working or trading days in a month; Leap year effects; Length of the month; and Moving holidays such as Diwali, Holi, and Eid.

Direct and Indirect approaches to seasonal adjustment

8.13. Given that the IIP is a composite index derived from a weighted aggregation of several sectoral, industry-level, or item group-level series, seasonal adjustment can be undertaken at different levels of aggregation. Broadly, two approaches are followed: the direct approach and the indirect approach.

8.14. Under the direct approach, seasonal adjustment is applied directly to the aggregate IIP series. The unadjusted IIP is first compiled by aggregating the component indices using the prescribed weights, and the resulting aggregate series is then seasonally adjusted as a single time series. Although operationally efficient and relatively simple to implement, this approach does not explicitly account for the heterogeneous seasonal patterns present across different industries or sectors.

8.15. In the indirect approach, seasonal adjustment is carried out at a disaggregated level, such as sectors, industry groups, or item group-level series. The seasonally adjusted aggregate IIP is then computed by aggregating the seasonally adjusted component series using their weights. This approach allows the explicit modelling of diverse seasonal patterns across sectors/ industries and ensures internal consistency between seasonally adjusted aggregates and their components but requires careful model specification and monitoring for each series. This may also lead to larger revisions to the aggregate seasonally adjusted IIP as the component level models are updated.

8.16. Considering the above, the TAC-IIP was of the opinion that the sectoral and general indices of IIP may be seasonally adjusted using the direct approach. This approach provides a practical balance between analytical usefulness and operational feasibility, while ensuring stability in the adjusted series.

Partial Concurrent Adjustment

8.17. In seasonal adjustment the model, i.e., ARIMA specifications, regressors, outliers, calendar effects, etc., are re-estimated every time a new observation is added. While this enables the model to continuously adapt to the latest data, this may also result in revisions in the entire past data. These revisions may cause instability in the series and confusion among users.

8.18. Again, keeping the model fixed over time would offer stability in the series by restricting revisions in the past data, but would constrain the model from adapting to new observations. This inflexibility may result in biased estimates and erroneous results.

8.19. Partial concurrent adjustment is a seasonal adjustment approach in which model identification is reviewed periodically, while parameter estimation and seasonal factors are updated with each new observation. Here the model structure is updated periodically, but not every month, while seasonal adjustment is still computed using all available data. This method gives a distinct advantage because it balances stability and adaptability.

8.20. Given its hybrid approach and the policy sensitivity of IIP revisions, the partial concurrent adjustment is proposed to be used for the seasonal adjustment of IIP.

Critical Questions to be considered

8.21. The TAC-IIP deliberated on the methodology for seasonal adjustment of IIP. While there was a general consensus on the methodology and the approaches to be used, some issues that require careful consideration are discussed below.

i. Treatment of abnormal periods like the COVID-19 pandemic: Events like the COVID-19 cause systemic disruptions in the economy due to factors like lockdowns, supply chain interruptions, and sudden demand shocks, which are not part of regular seasonal or cyclical patterns. In the seasonal adjustment framework, these abnormal movements are treated as outliers rather than as components of normal seasonal behaviour. The methodology identifies and models such extreme observations explicitly to prevent them from distorting the estimation of seasonal factors.

   Empirical analysis of the IIP series indicates that a large number of outliers correspond to the COVID-19 period, particularly during 2020 and subsequent recovery phases. These outliers are attributable to genuine economic disruptions rather than data errors and therefore require careful treatment within the modelling framework.

ii. Identification of calendar regressors: In a culturally diverse country like India, identifying the calendar regressors poses a significant challenge. Holidays that have a considerable impact in some region may have limited relevance in others. The option in such cases would be to identify calendar regressors only from holidays that have a national impact like the Diwali.

   However, it is observed that some regional holidays are clustered together in a particular month having limited individual relevance in the national level but their combined effect may be significant. For example, festivals like the Raksha Bandhan, Janmastami, Onam, Ganesh Chaturthi and the Independence Day are clustered together around the month of August and do not have statistically significant impact at the national level. However, these festivals would have a considerable combined effect. This problem is compounded when some of these holidays shift to different months over the years.

iii. Minimum length of time series for seasonal adjustment: The IRIIP, 2010 recommends that a minimum of five years of continuous monthly data is generally required to produce robust and stable seasonally adjusted estimates. Such length of time series is required to identify more precisely the seasonal pattern and to adjust the series for calendar variations, outliers, and particular events that may have affected the series and may cause difficulties in properly identifying the seasonal pattern of the series.

8.22. **The TAC-IIP after carefully considering the above recommends that the seasonal adjustment of IIP may be undertaken only after availability of the desirable length of time series data (5 years monthly data). Further, it also recommends that the factors like the treatment of systemic shocks and identification of calendar regressors may be carefully considered before**

undertaking the exercise. Although the TAC-IIP observes that X-13 ARIMA-SEATS is a fairly robust model for seasonally adjusting IIP, it recommends that the choice of model and technique may be decided at the time of undertaking the exercise after considering the latest options available at that time.

Measuring the Unincorporated sector

8.23. With the expansion of the informal sector, there is a growing need for a short-term indicator to measure its performance. The all-India IIP is inadequate in this regard, as it primarily captures only the organised sector.

8.24. Measuring the unorganized sector of the economy is difficult because of its diverse, scattered, and often undocumented nature. The main challenges are:

- Lack of reliable data: Most unorganized enterprises do not maintain proper accounts or records;
- Units are usually very small and scattered: Operate from homes, streets, or temporary locations, making identification difficult;
- There is high mobility of establishments, both in terms of location and activity.

8.25. Given the above, constructing production index for the unorganized sector using the methodology of the all-India IIP is unviable because a fixed panel of factories providing data for items in the item basket may not be possible for this sector.

Annual Survey of Unincorporated Sector Enterprises

8.26. The NSS is conducting the Annual Survey of Unincorporated Sector Enterprises (ASUSE) since 2021-22. This survey aims to measure the GVA of the unincorporated sector on an annual basis. However, the ASUSE now envisages bringing out quarterly estimates for the unincorporated structure. This will provide the GVA for the sector on a quarterly basis and would thus answer to long-standing demand for a short-term measure for the informal sector of the economy.

8.27. The quarterly GVA from ASUSE would however be in current prices and thus a real measure for the sector would still not be available. This measure at constant prices can be achieved through the construction of an index.

8.28. Although there is insufficient data at present for the construction of an index at a quarterly frequency, the TAC-IIP draws out a methodology that may be considered for the construction of an index for the manufacturing sector of the unincorporated economy.

Methodology

8.29. The unit level data of ASUSE can be leveraged to estimate the NIC 5-Digit level to NIC 2-Digit level GVA and GVO of the unincorporated sector. This is going to form the basis of constructing the manufacturing index for the unincorporated sector.

8.30. It is to be noted here that the sample design of ASUSE does not ensure robust estimates as per the NIC 2-/ 3-/ 4-/ 5-Digit levels. For this reason, the ASUSE publishes results at broad activity levels

which comprise of one or more NIC categories. Thus, compilation of the indices for the unincorporated sector may also be undertaken as per the broad categories of ASUSE.

8.31. As mentioned earlier, selecting an item basket and then selecting a panel of factories for reporting production data is not practical in the unincorporated sector. This is because of the casual nature of the enterprises in the sector where the nature of activity and line of production of the enterprises change frequently. There is also a high rate of birth and closure of the enterprises in this sector.

8.32. Due to the above reasons, the index may be constructed at the industry levels. This is to be done by first deflating the output at the industry level using appropriate deflators from WPI/ PPI to bring them to the base year prices. The formula to be used for deflation is given below.

$$GVO^{d}_{i,t} = GVO_{i,t}\, X\, \frac{PI_{i,0}}{PI_{i,t}}$$

Where, $GVO^{d}_{i,t}$ = GVO of the i^{th} industry for period t at prices of the base year;

$GVO_{i,t}$ = GVO of the i^{th} industry for period t at current prices;

$PI_{i,t}$ = WPI/ PPI of the i^{th} industry for period t; and

$PI_{i,0}$= WPI/ PPI of the i^{th} industry for base year

8.33. To compile the index at the industry level, the production relatives are to be calculated using the deflated production derived above. These production relatives if multiplied by 100 would give the industry level indices.

Drawing of Weights

8.34. The GVA data from ASUSE is to be used as the weighting data for drawing of weights for the index. Since the index is to be compiled at the industry levels and not at further disaggregated levels, the weights so derived may not be further distributed.

8.35. The production relatives are then calculated using the deflated output of the current year and the base year output using the same formula used in compilation of all-India IIP.

Aggregation of Indices

8.36. The industry level indices are to be aggregated to higher levels as per the Lasperyes' formula.

8.37. The methodology outlined above provides a starting point for finding an indicator for the unincorporated or informal sector of the economy. However, since ASUSE does not use a panel sampling technique, veracity of compiling an index for the sector using this data will have to be carefully considered.

8.38. Thus, the **TAC-IIP recommends that the compilation of production indices for the manufacturing sector of the unincorporated sector of the economy may be undertaken only after studying the results over a period of time.**

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ANNEXURES

Annexure-I

Constitution of Technical Advisory Committee for base year revision of All India IIP

File No. M-12012/7/2024-ESD
Government of India
Ministry of Statistics & Programme Implementation
Central Statistical Office
(Economic Statistics Division)

K. L. Bhawan,
Janpath, New Delhi-110001
Dated: 27.09.2024

OFFICE MEMORANDUM

Subject: Constitution of Technical Advisory Committee for base year revision of All India Index of Industrial Production (IIP)

With the approval of the Competent Authority a Technical Advisory Committee – IIP (TAC-IIP) for development of Methodology for compilation of All India Index of Industrial Production (IIP) is hereby constituted with the following composition and Terms of Reference:

Composition of the Technical Advisory Committee – IIP:

1	**Dr. Mridul K Saggar** Professor of Practice (Economics), Indian Institute of Management (IIM), Kozhikode	Chairman (Official)
2.	**Dr. Suresh Babu M** Director and Professor, Madras Institute of Development Studies, Chennai	Member (Non-official)
3.	**Dr. Soumya Kanti Ghosh** Group Chief Economic Advisor, State Bank of India, Mumbai	Member (Official)
4.	**Dr Ila Patnaik** Chief Economist, Aditya Birla Group, Mumbai	Member (Non-official
5.	**Mr. Laveesh Bhandari** President and a Senior Fellow Centre for Social and Economic Progress, New Delhi	Member (Non-official)
6.	**Dr. Ranjeet Mehta** CEO & Secretary General PHD Chamber of Commerce and Industry (PHDCCI), New Delhi	Member (Non-official)
7.	**Shri Manish Kumar Sinha** CEO, Goods and Service Tax, New Delhi	Member (Official)
8.	ADG (ESD), MoSPI	Member (Official)
9.	ADG(NAD), MoSPI	Member (Official)
10.	DDG (Industrial Statistics Wing), Kolkata	Member (Official)

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11.	DDG, DPIIT, New Delhi	Member (Official)
12.	Representative from Indian Bureau of Mines, Nagpur	Member (Official)
13.	Representative from Central Electricity Authority, Ministry of Power, New Delhi	Member (Official)
14.	Executive Secretary, JPC (Joint Plant Committee), Kolkata	Member (Official)
15.	Representative from M/o Food Processing	Member (Official)
16.	Representative from O/o of Development Commissioner, MSME	Member (Official)
17.	Representative from States DES, Uttar Pradesh	Member (Official)
18.	Representative from States DES, Tamil Nadu	Member (Official)
19.	Representative from States DES, Maharashtra	Member (Official)
20.	Representative from States DES, Gujarat	Member (Official)
21.	DDG (ESD)	Member Secretary

Terms of References

a. To align the base year for IIP with the base year for National Accounts.
b. To review the existing methodology and suggest improvements in the context of International practices
c. Selection of a representative item basket
d. Derivation of weighting diagram for the selected items
e. To identify the elementary source units (factory/ mill etc.) for collection of production data for the purpose of IIP compilation and also to examine the feasibility of integration of data collection for IIP and WPI for common set of factories
f. To review the trial IIP before releasing
g. To suggest procedures for substitution of factories in case of closure or change in production line and also to suggest measures to suitably consider new large sized factories, which come in production during a particular base period.
h. To deliberate adoption of chained linked IIP in place of fixed base IIP.
i. To review linking factor of 2011-12 series and new series
j. To review recommendations of various committees for improvement of IIP
k. Any other issue with the permission of the chair.

2. The committee may constitute different sub-committee (s) under the chairperson ship of the subject experts/ member from among the composition of the committee and other

subject experts within and/or outside the Government in Consultation with the chairperson of the committee and sub-committee with the approval of the Competent Authority.

3. The committee may invite subject experts in the meeting as special invitee, if necessary, in order to meet specific requirements.

4. The non-official Members of the TAC-IIP would be entitled to a sitting fee of Rs.4000/- per day for attending meetings. The sitting fees to Non-Official Members are in accordance with the Department of Expenditure, Ministry of Finance's O.M.No.19047/10/2016-E-IV dated 12.04.2017.

5. The non-official members being eminent experts, are entitled for TA/DA as per the Part III of the OM No 19047/1/2016-E.IV, dated 14.09.2017(as revised from time to time).

6. Air Tickets shall be purchased, if any will be in accordance to the Department of Expenditure, Ministry of Finance's O.M.No.19024/03/2021-E-IV dated 16.06.2022 (as revised from time to time).

7. In case of any retired Govt. officials is invited as an experts, the TA/DA will be entitled same as per their entitlements at the time of retirement as per revised mentioned in D/o Expenditure's OM No. OM No 19047/1/2016-E.IV, dated 14.09.2017(as revised from time to time).

8. The expenditure on TA/ DA of the official members ordinarily will be borne by their respective Ministries/ Departments/ Organizations. However, NSO, MOSPI would bear the traveling expenses of the official members/Chairman, if the member, in writing informs the inconvenience and requests NSO to bear the traveling expenditure.

9. The expenditure on conducting the meetings of the TAC-IIP and on payments / reimbursements to be made to the Non-Official Members will be borne by the Ministry of Statistics and Programme Implementation, New Delhi under 3454-Census, Survey and Statistics (Major Head), 02-Survey and Statistics (Sub-Major Head), 02.204- Central Statistics Office (Minor Head), 19- Capacity Development (Capacity Development of CSO

and Institutional Development & Capacity Building), 19.01.11 (Domestic Travel Expenses) for TA/DA and 19.01.28 (Professional Services) for sitting fee (MoSPI Order No A-36011/02/2024-Ad.III, dated 06/09/2024).

10. The Tenure of the committee will be until six (06) months after release of IIP with new base year.

11. Economic Statistics Division (ESD) will provide Secretariat support to the TAC-IIP.

This issues with the approval of the Competent Authority.

D. Dhanawat 27/09/20

(Deepak Dhanawat)
Director

To

The Chairman & Members of the Committee

Copy for information to:

1. Sr. PPS to Secretary, MoPSI
2. PPS to DG (NSS), MoSPI
3. PPS to DG (C & A), MoSPI
4. PPS to DG (Statistics), MoSPI
5. PPS to JS(Admn), MoSPI

Annexure-II

Officers and staff associated with IIP

Sr. No.	Name and Designation
1.	Sh. Deepak Dhanawat, Director, ESD, MoSPI
2.	Sh. Rohit Naagar, Joint Director, ESD, MoSPI
3.	Ms. Priyanka Pandey, Deputy Director, ESD, MoSPI
4.	Sh. Aparoop Bhattacharyya, Senior Statistical Officer, ESD, MoSPI
5.	Sh. Awanish Kumar, Senior Statistical Officer, ESD, MoSPI
6.	Sh. Niraj Dwivedi, Senior Statistical Officer, ESD, MoSPI
7.	Sh. Aditya Singh Hada, Senior Statistical Officer, ESD, MoSPI
8.	Sh. Nitin Chawla, Senior Statistical Officer, ESD, MoSPI
9.	Sh. Anurag Mishra, Junior Statistical Officer, ESD, MoSPI
10.	Dr. Malan Begum Zardi, Consultant, ESD, MoSPI
11.	Ms. Riya Saha, Consultant, ESD, MoSPI
12.	Sh. Adwithiya Pachisia, Consultant, ESD, MoSPI
13.	Sh. Jitendra Kumar Sain, Consultant, ESD, MoSPI
14.	Ms. Mehak Batra, Consultant, ESD, MoSPI
15.	Ms. Meenakshi, DEO, ESD, MoSPI
16.	Sh. Virpal, DEO, ESD, MoSPI

Annexure-III

Item basket of IIP 2022-23

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
1	51001	Primary goods	Fuel Minerals	--
2	71001	Primary goods	Metallic Minerals (Incl. Rare earth Mineral)	--
3	81001	Primary goods	Non-Metallic Minerals (Incl. Minor Minerals)	--
4	101004	Consumer non-durables	Poultry Meat – Dressed & Frozen, Whether or Not Canned	Tonnes
5	101005	Consumer non-durables	Buffalo Meat – Fresh, Chilled or Frozen, Whether or Not Canned	Tonnes
6	102003	Consumer non-durables	Fish Meat and Fillets, Chilled/Frozen	Tonnes
7	102003	Consumer non-durables	Whole Fish, Chilled/Frozen (Excluding Fish Fillets and Fish Meat)	Tonnes
8	102003	Consumer non-durables	Processed or Frozen Shrimps and Prawns	Tonnes
9	103001	Consumer non-durables	Dried Fruits and Vegetables	Tonnes
10	103003	Consumer non-durables	Fruit Juice (Including Concentrates and Pulp)	K.Litre.
11	103004	Consumer non-durables	Jams, Fruit Jellies, Marmalades, Including Aam Papad	Tonnes
12	103004	Consumer non-durables	Sauces, All Types	Tonnes
13	103005	Consumer non-durables	Pickles	Tonnes
14	103005	Consumer non-durables	Vegetables Preserved by Vinegar or Acetic Acid	Tonnes
15	103008	Consumer non-durables	Roasted or Salted Nuts, Groundnuts and Other Seeds	Tonnes
16	103008	Consumer non-durables	Shelled Cashew Kernels, Whether or Not Processed/Roasted/Salted	Tonnes
17	103099	Consumer non-durables	Frozen or Provisionally Preserved Fruits and Nuts, Uncooked or Cooked	Tonnes
18	103099	Consumer non-durables	Peas, Frozen	Tonnes

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
19	103099	Consumer non-durables	Vegetables and Pulses, Frozen	Tonnes
20	104001	Consumer non-durables	Vanaspati and Other Vegetable Oils & Fats	MT
21	104002	Consumer non-durables	Mustard Oil	MT
22	104003	Consumer non-durables	Coconut Oil	MT
23	104003	Consumer non-durables	Cottonseed Oil	MT
24	104003	Consumer non-durables	Palm Oil	MT
25	104003	Consumer non-durables	Rice Bran Oil	MT
26	104003	Consumer non-durables	Soybean Oil	MT
27	104003	Consumer non-durables	Sunflower Seed Oil	MT
28	104007	Consumer non-durables	Oilseed Cakes (Oilcakes)	MT
29	105001	Consumer non-durables	Full-Cream/Toned/Skimmed Milk, Whether or Not Chilled	Th. Kilo Liters
30	105002	Consumer non-durables	Milk Powder and Whey Powder	Tonnes
31	105003	Consumer non-durables	Ghee	Tonnes
32	105004	Consumer non-durables	Curd (Dahi)	Tonnes
33	105005	Consumer non-durables	Ice Cream	K.Litre.
34	106101	Consumer non-durables	Rice (Other Than Basmati)	Tonnes
35	106101	Consumer non-durables	Basmati Rice	Th.Tonnes
36	106102	Consumer non-durables	Wheat Bran	Tonnes
37	106102	Consumer non-durables	Wheat Flour (Atta/Maida)	Tonnes
38	106103	Consumer non-durables	Dal, Milled	Tonnes
39	106201	Intermediate goods	Starch, All Types	Th.Tonnes
40	107102	Consumer non-durables	Cakes, Pastries, Muffins, Bread and Buns	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
41	107103	Consumer non-durables	Biscuits and Cookies	Th.Tonnes
42	107201	Intermediate goods	Bagasse, Including Beet Pulp	Th.Tonnes
43	107201	Intermediate goods	Molasses	Th.Tonnes
44	107201	Consumer non-durables	Sugar	MT
45	107302	Consumer non-durables	Chocolate & Cocoa Powder	Tonnes
46	107303	Consumer non-durables	Sugar Confectionery and Non-Dairy Sweetmeats	Tonnes
47	107304	Consumer non-durables	Milk-Based Sweetmeats	Rs. Crore
48	107400	Consumer non-durables	Macaroni, Noodles and Couscous	Tonnes
49	107501	Consumer non-durables	Prepared Dishes and Meals Based on Meat	Rs. Crore
50	107503	Consumer non-durables	Prepared Meals Based on Vegetables, Pulses and Potatoes	Tonnes
51	107601	Consumer non-durables	Tea	Tonnes
52	107602	Consumer non-durables	Coffee	Tonnes
53	107901	Consumer non-durables	Baby Food	Tonnes
54	107902	Consumer non-durables	Homogenized Composite Food Preparations Including Protein Powder and Health Drinks	Rs. Crore
55	107906	Consumer non-durables	Spices (Including Mixed Spices)	Tonnes
56	107999	Consumer non-durables	Chips and Wafers	Tonnes
57	107999	Consumer non-durables	Namkeen and Bhujia	Tonnes
58	107999	Consumer non-durables	Soya Preparations (Nuggets, etc.)	Tonnes
59	108002	Intermediate goods	Husk/Grain-Based Animal, Poultry and Aquatic Feed	Th.Tonnes
60	110101	Consumer non-durables	Distilled Alcoholic Liquors, Including Whisky, Gin, Rum, Vodka and Similar Products	K.Litre.

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
61	110106	Consumer non-durables	Toddy and Other Country Liquors	K.Litre.
62	110199	Intermediate goods	Rectified Spirit	K.Litre.
63	110301	Consumer non-durables	Beer and Other Undistilled and Fermented Alcoholic Liquors Other Than Wines	Th. Kilo Liters
64	110501	Consumer non-durables	Aerated and Soft Drinks (Including Soft Drink Concentrates)	Th. Kilo Liters
65	110503	Consumer non-durables	Bottled Mineral Water	Th. Kilo Liters
66	120002	Consumer non-durables	Bidi	Lakh Nos.
67	120004	Consumer non-durables	Cigarettes	Mill.Nos.
68	120099	Consumer non-durables	Tobacco Products Including Gutkha and Pan Masala	Rs. Crore
69	131101	Intermediate goods	Cotton Waste	MT
70	131101	Intermediate goods	Cotton Yarn	MT
71	131106	Intermediate goods	Acrylic Yarn	MT
72	131106	Intermediate goods	Blended Yarn (Other Than Sewing Thread) of Synthetic Staple Fibres	MT
73	131106	Intermediate goods	Sewing Thread of Man-Made Filaments or Staple Fibres	Th.Tonnes
74	131106	Intermediate goods	Yarn (Other Than Sewing Thread) of Synthetic, Viscose and Polyester Staple Fibres	MT
75	131106	Intermediate goods	Wool Yarn	MT
76	131201	Intermediate goods	Cotton Woven Fabric	Rs. Crore
77	131208	Intermediate goods	Jute Sacking Cloth and Hessian Fabric	Th. MT
78	131209	Intermediate goods	Woven Fabrics of Synthetic Staple and Man-Made Filament Yarn	Rs. Crore
79	131210	Consumer durables	Textile Products and Articles for Technical Uses	Rs. Crore
80	131304	Intermediate goods	Dyed, Printed or Embroidered PFY Cloth	Rs. Crore
81	139101	Intermediate goods	Knitted Fabrics of Cotton	Rs. Crore
82	139201	Consumer durables	Bed Linen, Bedspreads, Curtains, Drapes and Interior Blinds	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
83	139203	Consumer durables	Quilts Including Eiderdowns, Cushions, Pouffes, Pillows and Sleeping Bags	Rs. Crore
84	139204	Consumer durables	Blankets	Rs. Crore
85	139205	Consumer durables	Terry Towels	Tonnes
86	139299	Consumer non-durables	Made-Up Articles of Textile Materials Other Than Bed Linen/Bedspreads/Curtains	Rs. Crore
87	139299	Consumer durables	Jute Sacks and Gunny Bags for Packaging of Goods	Th.Nos.
88	139301	Consumer durables	Carpets and Other Textile Floor Coverings	Rs. Crore
89	139405	Intermediate goods	Fishing Nets and Knotted Netting of Twine	Rs. Crore
90	139902	Intermediate goods	Articles of Non-Woven Textiles	Th.Tonnes
91	139902	Intermediate goods	Textile Fabrics for Conveyor Belts	Rs. Crore
92	139903	Intermediate goods	Textile Labels	Rs. Crore
93	139906	Consumer durables	PVC Cloth	Rs. Crore
94	141002	Consumer durables	Readymade Garments, Other Than Knitted Garments	Rs. Crore
95	141005	Consumer durables	Leather Gloves	Rs. Crore
96	142099	Consumer durables	Bags and Handbags of Artificial Fur	Rs. Crore
97	143001	Consumer durables	Readymade Garments, Knitted	Rs. Crore
98	143002	Consumer non-durables	Underwear, Socks and Other Hosiery Products	Rs. Crore
99	151102	Intermediate goods	Tanned and Dressed Leather, Vegetable or Chrome Tanned	Rs. Crore
100	151201	Consumer durables	Leather Waist Belts	Rs. Crore
101	151201	Consumer durables	Travel Goods, Handbags and Backpacks Except PVC Suitcases	Rs. Crore
102	151299	Consumer durables	Saddlery and Harness for Animal, of Any Material	Rs. Crore
103	152001	Consumer durables	Footwear with Leather Uppers	Rs. Crore
104	152002	Consumer durables	Footwear with Uppers of Rubber or Plastics, Including Sandals of Rubber/Plastics	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
105	152002	Consumer durables	Footwear with Uppers of Textile Materials, Other Than Sports Footwear	Rs. Crore
106	152002	Consumer durables	Sports Footwear, excluding Skating Boots	Rs. Crore
107	152003	Consumer non-durables	Parts of Footwear; Removable Insoles, Heel Cushions and Similar Articles	Rs. Crore
108	161001	Intermediate goods	Sawn Timber and Wooden Planks Including Flush Doors	Rs. Crore
109	162101	Intermediate goods	Laminated Wooden Sheets/Veneer Sheets	Rs. Crore
110	162102	Consumer durables	Plywood and Block Boards	Th.Sq.Mtrs
111	162103	Intermediate goods	Particle Boards	Th.Sq.Mtrs
112	162104	Intermediate goods	Wood Fibreboard	Th.Sq.Mtrs
113	162301	Consumer durables	Wooden Boxes (Including Packing Boxes)	Rs. Crore
114	170199	Intermediate goods	Newsprint	Tonnes
115	170202	Consumer non-durables	Paper Products (Including Cardboard, Corrugated Boxes, Rolls, Boards, Tubes and Sleeves, etc.)	Rs. Crore
116	170901	Consumer non-durables	Paper of All Kinds, Excluding Newsprint	Th.Tonnes
117	181101	Consumer non-durables	Newspapers	Lakh Nos.
118	181102	Consumer durables	Printed Books (Including Manuals, Reports, Brochures, Catalogues, etc.)	Rs. Crore
119	181102	Consumer non-durables	Printed Labels, Posters, Calendars and Cards	Rs. Crore
120	191001	Primary goods	Coke, All Types	Tonnes
121	192001	Primary goods	Aviation Turbine Fuel (ATF)	MT
122	192001	Primary goods	Diesel	MT
123	192001	Primary goods	Furnace Oil	MT
124	192001	Intermediate goods	Naphtha	MT
125	192001	Primary goods	Petrol (Motor Spirit)	MT

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
126	192002	Primary goods	Bitumen	MT
127	192003	Primary goods	Liquefied Petroleum Gas (LPG)	MT
128	201101	Intermediate goods	Oxygen	Th.Cu.Mtrs
129	201102	Intermediate goods	Sulphuric Acid (Including 98% Oleum)	Tonnes
130	201102	Intermediate goods	Caustic Soda (Sodium Hydroxide)	MT
131	201103	Intermediate goods	Colour Chemicals	MT
132	201103	Intermediate goods	Dyes and Pigments	MT
133	201103	Intermediate goods	Titanium Dioxide	MT
134	201104	Intermediate goods	Phthalic Anhydride (PAN)	MT
135	201105	Intermediate goods	Carbon/Carbon Black	Tonnes
136	201105	Intermediate goods	Soda Ash (Sodium Carbonate/Washing Soda)	MT
137	201105	Intermediate goods	Sodium Bicarbonate	MT
138	201105	Intermediate goods	Zinc Oxide	Tonnes
139	201106	Intermediate goods	Amines	MT
140	201106	Intermediate goods	Aniline and Related Compounds (Including PNA, ONA and OCPNA)	MT
141	201106	Intermediate goods	Butadiene	MT
142	201106	Intermediate goods	Dodecyl Benzene/Linear Alkyl Benzene (LAB)	MT
143	201106	Intermediate goods	Ethyl Acetate	MT
144	201106	Intermediate goods	Ethyl Alcohol (Ethanol)	K.Litre.
145	201106	Intermediate goods	Formaldehyde	MT
146	201106	Intermediate goods	Phenol or Phenol Extract	MT
147	201106	Intermediate goods	Purified Terephthalic Acid (PTA)	MT

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
148	201108	Intermediate goods	Aromatic Chemicals	Tonnes
149	201201	Intermediate goods	Urea	MT
150	201203	Intermediate goods	Ammonium Sulphate	Tonnes
151	201203	Intermediate goods	Diammonium Phosphate (DAP)	MT
152	201203	Intermediate goods	Fertilizers Containing Two orThree Nutrients: Nitrogen, Phosphorus and Potassium	MT
153	201203	Intermediate goods	Superphosphate	MT
154	201204	Intermediate goods	Nitric Acid	Tonnes
155	201204	Intermediate goods	Liquid Ammonia	Tonnes
156	201204	Intermediate goods	Ammonium Nitrate	Tonnes
157	201301	Intermediate goods	ABS Resin	MT
158	201301	Intermediate goods	Synthetic and Nylon Chips	MT
159	201301	Intermediate goods	Polyethylene Terephthalate (PET)	MT
160	201301	Intermediate goods	Polymers, All Types	MT
161	201301	Intermediate goods	Polyol	MT
162	201301	Intermediate goods	Polyurethane (PU)	MT
163	201302	Intermediate goods	Synthetic Rubber (Including PBR, SBR)	MT
164	202101	Consumer non-durables	Mosquito Repellent ncluding Lotions, Coils and Liquids	Rs. Crore
165	202101	Intermediate goods	Pesticides (Insecticides, Fungicides & Herbicides)	MT
166	202199	Intermediate goods	Other Agrochemical Formulations	MT
167	202201	Infrastructure/ construction goods	Paints, All Types	Tonnes
168	202201	Intermediate goods	Powder Coating Materials	Tonnes

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
169	202201	Intermediate goods	Varnishes, All Types	Tonnes
170	202203	Intermediate goods	Printing Ink	Tonnes
171	202205	Intermediate goods	Thinner	Tonnes
172	202301	Consumer non-durables	Soap Compounds, Surface-Active Agents and Preparations	Rs. Crore
173	202301	Consumer non-durables	Medicated Soap	Rs. Crore
174	202301	Consumer non-durables	Toilet Soap (Excluding Baby Soap), Including Liquid Soap and Foam	Tonnes
175	202302	Consumer non-durables	Detergents, All Types (Cake, Bar, Powder, Liquid)	Tonnes
176	202303	Consumer non-durables	Agarbatti and Dhoop	Rs. Crore
177	202304	Consumer non-durables	Fragrances and Essential Oils	Rs.Lakhs
178	202305	Consumer non-durables	Toothpaste	Tonnes
179	202306	Consumer non-durables	Hair Dye	Tonnes
180	202306	Consumer non-durables	Hair Oil	Tonnes
181	202306	Consumer non-durables	Hair Shampoo	Tonnes
182	202307	Consumer non-durables	Cosmetic Items	Rs. Crore
183	202307	Consumer non-durables	Creams and Lotions for Topical Application	Tonnes
184	202901	Consumer non-durables	Safety Matches (Matchboxes)	Rs. Crore
185	202902	Consumer non-durables	Fireworks and Pyrotechnic Articles	Rs. Crore
186	202902	Intermediate goods	Gunpowder, Detonators and Prepared Explosives	Tonnes
187	202903	Intermediate goods	Menthol	MT
188	202905	Intermediate goods	Glues and Gelatine	Tonnes
189	202906	Intermediate goods	Adhesive Formulations Other Than Natural Gum	Tonnes
190	202908	Consumer non-durables	Diagnostic Reagents and Kits	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
191	202999	Intermediate goods	Catalysts, Chemical	Tonnes
192	202999	Intermediate goods	Rubber Chemicals	Tonnes
193	203003	Intermediate goods	Nylon Filament Yarn (NFY)	MT
194	203003	Intermediate goods	Nylon Industrial Yarn/Tyre Cord (NTC)	Th.Tonnes
195	203003	Intermediate goods	Yarn of Artificial Fibres/Viscose/Man-Made Filament	MT
196	210001	Consumer non-durables	Anticoagulants	Rs. Crore
197	210001	Consumer non-durables	Anti-Retroviral Drugs for HIV Treatment	Rs. Crore
198	210001	Consumer non-durables	API & Formulations of Hypo-Lipidemic Agents (e.g., Simvastatin, Atorvastatin, Anti-Hypertriglyceridemia) and Anti-Hypertensive Drugs	Rs. Crore
199	210002	Consumer non-durables	Acyclovir, Famciclovir and Other Anti-Varicella or Antiviral Preparations	Rs. Crore
200	210002	Consumer non-durables	Antibiotics, APIs and Formulations	Rs. Crore
201	210002	Consumer non-durables	Anti-Cancer Drugs	Rs. Crore
202	210002	Consumer non-durables	Antidiabetic Drugs Excluding Insulin	Rs. Crore
203	210002	Consumer non-durables	Antihistamine, Antistine, Anthisan, Antitussive (Codeine, etc.) Preparations	Rs. Crore
204	210002	Consumer non-durables	Anti-Malarial Drugs	Rs. Crore
205	210002	Consumer non-durables	Anti-Psychotic, Sedative and Hypnotic Medicines	Rs. Crore
206	210002	Consumer non-durables	Anti-Pyretic, Analgesic and Anti-Inflammatory APIs and Formulations	Rs. Crore
207	210002	Consumer non-durables	APIs and Formulations of Vitamins	Rs. Crore
208	210002	Consumer non-durables	Digestive Enzymes and Antacids (Including PPI Drugs)	Rs. Crore
209	210002	Consumer non-durables	Intravenous (IV) Fluids	Rs. Crore
210	210002	Consumer non-durables	Allopathic Ointments	Rs. Crore
211	210002	Consumer non-durables	Steroids and Hormonal Preparations (Including Anti-Fungal Preparations)	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
212	210002	Consumer non-durables	Theophylline, Salbutamol & Bronchodilators, Anti-Asthma Preparations	Rs. Crore
213	210003	Consumer non-durables	Ayurvedic and Homeopathic Medicaments	Rs. Crore
214	210006	Consumer non-durables	HIV Testing Kits	Rs. Crore
215	210007	Consumer non-durables	Vaccines for Veterinary Medicine	Rs. Crore
216	210007	Consumer non-durables	Vaccines, Other Than Veterinary	Rs. Crore
217	210099	Consumer non-durables	Laxative Preparations, Including Cremaffin, Lactulose and Isabgol Preparations	Rs. Crore
218	221101	Capital goods	Tractor Tyres	Rs. Crore
219	221101	Capital goods	Tyres & Tubes for Heavy Motor Vehicles (HMV) and Trailers (Including Tubeless Solid Tyres)	Rs. Crore
220	221101	Consumer durables	Tyres for Light Motor Vehicles (LMV)	Th.Nos.
221	221101	Consumer durables	Tyres for Scooters, Motorcycles and Three-Wheelers	Th.Nos.
222	221102	Consumer durables	Tyres for Bicycles/Tricycles/Rickshaws	Th.Nos.
223	221901	Intermediate goods	Articles of Processed/Vulcanized Rubber Other Than Apparel & Clothing Accessories	Rs. Crore
224	221901	Intermediate goods	Unvulcanised Compounded Rubber Including Process Rubber and Latex	Rs. Crore
225	221902	Capital goods	V-Belts and Rubber Conveyors	Rs. Crore
226	221903	Consumer non-durables	Condoms	Lakh Nos.
227	221903	Intermediate goods	Reclaimed Rubber	Tonnes
228	221903	Intermediate goods	Rubber Crumbs	Tonnes
229	221999	Intermediate goods	Automobile Rubber Components	Rs. Crore
230	222001	Intermediate goods	Acrylic Sheets (Including PVC, Polystyrene/Polycarbonate and Other Plastic Sheets)	Tonnes
231	222001	Intermediate goods	Films of Polythene, Polyester, PVC and Other Plastics	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
232	222001	Intermediate goods	Rolls of HDPE/LDPE Polythene and PVC	Tonnes
233	222001	Consumer durables	Self-Adhesive Plates, Sheets, Film, Foil, Tape, Strip and Other Flat Shapes of Plastics	Meter
234	222002	Consumer durables	Plastic Tableware, Kitchenware, Containers, Household and Toilet Articles	Rs. Crore
235	222003	Consumer non-durables	Bags and Pouches of HDPE/LDPE Plastic	Tonnes
236	222003	Intermediate goods	Plastic Components for Packing, Closing and Bottling Articles & Electrical Fittings	Rs. Crore
237	222003	Consumer non-durables	Plastic and Woven HDPE Sacks	Rs. Crore
238	222004	Infrastructure/ construction goods	Plastic and PVC Pipes, Tubes & Conduits	Tonnes
239	222004	Consumer durables	Plastic Tanks	Th.Nos.
240	222004	Consumer durables	Plastic Tarpaulins	Tonnes
241	222004	Infrastructure/ construction goods	PVC Fittings and Other Accessories	Tonnes
242	222004	Infrastructure/ construction goods	PVC Windows and Doors	Rs. Crore
243	222099	Consumer non-durables	Non-Medicinal Adhesive Tape	Meter
244	222099	Consumer durables	PVC Suitcases	Rs. Crore
245	231001	Intermediate goods	Sheet Glass	Rs. Crore
246	231002	Intermediate goods	Fibreglass	Rs. Crore
247	231003	Consumer durables	Glassware	Rs. Crore
248	231004	Consumer non-durables	Glass Vials, Ampoules and Tubes	Rs. Crore
249	231006	Consumer non-durables	Glass Bangles	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
250	239102	Infrastructure/ construction goods	Refractory Bricks, Blocks and Tiles	Th. Tonnes
251	239201	Infrastructure/ construction goods	Bricks & Tiles (Non-Ceramic)	Rs. Crore
252	239304	Intermediate goods	Electrical Insulators andInsulating Fittings of Ceramics orPorcelain	Rs. Crore
253	239306	Infrastructure/ construction goods	Ceramic Sinks, Baths, Water Closet Pans, Flushing Cisterns and Similar Sanitary Fixtures	Rs. Crore
254	239399	Infrastructure/ construction goods	Ceramic Tiles, Flagstones & Bricks	Rs. Crore
255	239401	Infrastructure/ construction goods	Cement – All Types	Th.Tonnes
256	239401	Infrastructure/ construction goods	Cement Clinkers	Th.Tonnes
257	239502	Infrastructure/ construction goods	Pre-Fabricated Concrete Blocks and Ready-Mix Concrete (RMC)	Rs. Crore
258	239505	Infrastructure/ construction goods	Corrugated Asbestos Sheets	Th.Tonnes
259	239699	Infrastructure/ construction goods	Granite	Th. Sq. Feet
260	239699	Infrastructure/ construction goods	Polished or Unpolished Marble Slabs	Th.Sq.Mtrs

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
261	239699	Infrastructure/ construction goods	Stone Chips	Th.Tonnes
262	239699	Infrastructure/ construction goods	Crushed Stone/Dust/Powder	Rs. Crore
263	239901	Intermediate goods	Abrasive Grains andGrinding Products	Rs. Crore
264	239903	Intermediate goods	Artificial Graphite; Colloidal or Semi-Colloidal Graphite; Preparations Based on Graphite or Other Carbon in Semi-Manufactured Form	Rs. Crore
265	241001	Intermediate goods	Pig Iron	MT
266	241002	Intermediate goods	Sponge Iron/DRI	MT
267	241003	Intermediate goods	Billets, Blooms, Ingots, Pencil Ingots and Slabs of Alloy and Stainless Steel	MT
268	241003	Intermediate goods	Billets, Blooms, Ingots, Pencil Ingots and Slabs of Mild Steel	MT
269	241004	Intermediate goods	Ferro-Chromium (Ferrochrome)	MT
270	241004	Intermediate goods	Ferro Alloys Other Than Ferro-Chromium	MT
271	241005	Infrastructure/ construction goods	Bars and Rods of Alloy and Stainless Steel	MT
272	241005	Infrastructure/ construction goods	Bars and Rods of Mild Steel	MT
273	241005	Infrastructure/ construction goods	Flat Products of Alloy Steel	MT
274	241005	Infrastructure/ construction goods	Flat Products of Stainless Steel	MT

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
275	241005	Infrastructure/ construction goods	HR Coils and Sheets of Mild Steel	MT
276	241005	Infrastructure/ construction goods	HR Plates of Mild Steel	MT
277	241005	Infrastructure/ construction goods	Steel Structures (Including Angles, Shapes, Sections, etc.)	MT
278	241006	Infrastructure/ construction goods	CR Coils & Sheets of Mild Steel	MT
279	241007	Infrastructure/ construction goods	Steel Pipes and Tubes	MT
280	241099	Infrastructure/ construction goods	Rails and Rail Materials	MT
281	242001	Intermediate goods	Copper Cathodes and Cathode Sections	Tonnes
282	242002	Intermediate goods	Brass Tubes and Pipes	Tonnes
283	242002	Intermediate goods	Copper Bars, Rods & Wire Rods	Tonnes
284	242002	Intermediate goods	Copper Electrodes	Tonnes
285	242003	Intermediate goods	Alumina (Aluminium Oxide)	Tonnes
286	242004	Intermediate goods	Aluminium Billets and Ingots	Tonnes
287	242005	Intermediate goods	Aluminium Bars, Rods, Shapes, Sections and Profiles	Tonnes
288	242005	Intermediate goods	Aluminium Foil	Tonnes
289	242005	Infrastructure/ construction goods	Hollow Aluminium Profiles	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
290	242006	Intermediate goods	Lead & Lead Alloys	Tonnes
291	242006	Intermediate goods	Zinc Ingots/Blocks	Tonnes
292	243101	Infrastructure/ construction goods	Galvanized Iron Pipes	Th.Tonnes
293	243101	Infrastructure/ construction goods	High-Pressure Hydroelectric Steel Conduits, ERW Precision Tubes	Th.Tonnes
294	243101	Infrastructure/ construction goods	Spun Pipes	Th.Tonnes
295	243102	Infrastructure/ construction goods	Galvanized Steel Products (Including Colour-Coated, Tin Plates, TMBP and Tin-Free Steel)	MT
296	243105	Intermediate goods	Cast Iron Castings	Tonnes
297	243199	Intermediate goods	Iron Casings	Tonnes
298	251101	Infrastructure/ construction goods	Doors, Windows, Frames, Fittings and Thresholds of Iron or Steel	Rs. Crore
299	251102	Infrastructure/ construction goods	Iron and Steel Plates, Rods, Profiles, Tubes and Similar Structural Articles	Rs. Crore
300	251102	Infrastructure/ construction goods	Steel Frameworks/Skeletons for Tower Construction Including Pit Props	Th. Tonnes
301	251199	Infrastructure/ construction goods	Scaffolding and Shuttering Equipment	Rs. Crore
302	251199	Infrastructure/ construction goods	Steel Structures	Th.Tonnes

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
303	251201	Capital goods	Containers for Compressed or Liquefied Gas of Iron, Steel or Aluminium	Rs. Crore
304	251202	Capital goods	Pressure Vessels and Tanks Other Than Boilers	Rs. Crore
305	251301	Capital goods	Boilers & Parts Thereof	Rs. Crore
306	251303	Capital goods	Auxiliary Plants for Use with Boilers	Rs. Crore
307	252000	Capital goods	Military Weapons and Ammunition	Rs. Crore
308	259101	Intermediate goods	Forging and Die-Stamping Machines Including Presses and Hammers	Rs. Crore
309	259201	Intermediate goods	Aluminium-Coated Steel	Rs. Crore
310	259301	Consumer non-durables	Shaving Razors/ and Razor Blades	Rs. Crore
311	259303	Consumer durables	Hand Tools Including Interchangeable Tools, Non-Mechanized	Rs. Crore
312	259304	Consumer durables	Padlocks, Locks and Keys for Buildings, Doors, Furniture and Vehicles	Rs. Crore
313	259901	Intermediate goods	Bolts, Screws, Nuts and Nails of Iron/Steel	Rs. Crore
314	259902	Consumer durables	Steel/Aluminium Vessels and Containers Including Barrels and Drums	Rs. Crore
315	259904	Consumer durables	Aluminium Utensils (Including Non-Stick)	Rs. Crore
316	259904	Consumer durables	Pressure Cookers	Th.Nos.
317	259904	Consumer durables	Steel/Iron Utensils	Rs. Crore
318	259905	Consumer durables	Iron/Steel Casting Products for Sanitary Fittings	Rs. Crore
319	259905	Consumer durables	Other Iron and Steel Sanitary Ware	Rs. Crore
320	259906	Consumer durables	Safety Vaults/Lockers	Rs. Crore
321	259999	Capital goods	Coated Electrodes of Base Metal for Electric Arc Welding	Tonnes
322	259999	Capital goods	Fabricated Metal Products Including Forged Blanks	Rs. Crore
323	259999	Consumer durables	Hat Racks, Hat Pegs, Brackets and Similar Fixtures of Base Metal	Rs. Crore
324	259999	Consumer durables	Metal Seals, Others	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
325	259999	Consumer non-durables	Stoppers, Caps and Lids (Including Crown Corks) and Bottle Capsules	Rs. Crore
326	261101	Capital goods	Solar Cells, Solar Collectors & Parts Thereof	Rs. Crore
327	261901	Intermediate goods	Capacitors and Resistors	Rs. Crore
328	261904	Intermediate goods	Printed Circuit Boards (Whether or Not Mounted with IC Chips/Components)	Rs. Crore
329	262001	Capital goods	Computers Including Laptops	Rs. Crore
330	262004	Consumer durables	Printers, All Kinds	Rs. Crore
331	262005	Capital goods	ATMs (Automatic Teller Machines)	Rs. Crore
332	263001	Consumer durables	Telephones and Mobile Instruments	Rs. Crore
333	263005	Consumer durables	CCTV Cameras, Digital Cameras/Video Recorders	Rs. Crore
334	264001	Consumer durables	Televisions, All Types	Rs. Crore
335	264005	Consumer durables	Microphones, Loudspeakers, Headphones, Earphones, Electric Amplifiers and Public Address Equipment	Rs. Crore
336	265103	Consumer durables	Meters (Electric and Non-Electric)	Rs. Crore
337	265105	Capital goods	Radar Apparatus, Radio Navigational Aid Apparatus and Radio Remote-Control Apparatus	Rs. Crore
338	265106	Consumer durables	Scientific Instruments/Apparatus for Regulating, Controlling, Drawing, Calculating and Measurement	Rs. Crore
339	265201	Consumer durables	Automatic/Quartz Watches	Rs. Crore
340	266001	Capital goods	X-Ray Equipment	Rs. Crore
341	267003	Capital goods	Microscopes	Rs. Crore
342	268000	Consumer durables	Cards with Magnetic Stripes (e.g., Debit Cards, Credit Cards) and Smart cards	Rs. Crore
343	271001	Capital goods	Generators and Alternators	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
344	271002	Capital goods	Transformers (PDT and Special Types)	Rs. Crore
345	271002	Capital goods	Transformers (Small)	Th.Nos.
346	271003	Intermediate goods	AC/DC Motors and Parts Thereof	Rs. Crore
347	271003	Capital goods	Traction Motors	Th. HP
348	271005	Intermediate goods	Electrical Apparatus for Switching or Protecting Electrical Circuits (e.g., Switchgear, Circuit Breakers/Switches, Control/Meter Panels) and Parts Thereof	Rs. Lakhs
349	271099	Intermediate goods	Parts of Electrical Transformers, Static Converters and Inductors	Rs. Crore
350	272002	Consumer non-durables	Dry Cells	Rs. Crore
351	272002	Consumer durables	Electric Accumulators	Rs. Crore
352	272002	Consumer durables	Lead-Acid Storage Batteries	Rs. Crore
353	273100	Capital goods	Optical Fibre/Fibre Optic Cables	Th. Kilo Meters
354	273201	Intermediate goods	Aluminium Conductors, Including ACSR Conductors	Rs. Crore
355	273201	Capital goods	Coaxial Cables and Other Coaxial Electric Conductors	Rs. Crore
356	273201	Infrastructure/ construction goods	Copper Wires/Cables	Rs. Crore
357	273201	Infrastructure/ construction goods	Insulated Cables	Rs. Crore
358	273201	Infrastructure/ construction goods	PVC-Coated Wires	Rs. Crore
359	273399	Intermediate goods	End-Face Connectors for Optical Fibres and Cables	Rs. Crore
360	274001	Consumer durables	LED Bulbs/Tubes	Th.Nos.
361	274099	Consumer durables	Light Fitting Accessories	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
362	275001	Consumer durables	Electric Cooking Appliances (e.g., Ovens, Mixers/Grinders, Food Processors, Induction Cooktops)	Rs. Crore
363	275001	Consumer durables	Household Refrigerators and Freezers	Rs. Crore
364	275001	Consumer durables	Washing/Laundry Machines	Rs. Crore
365	275002	Consumer durables	Electric Heaters	Rs. Crore
366	275002	Consumer durables	Electric/Solar Water Heaters/Geysers (Domestic)	Rs. Crore
367	275003	Consumer durables	Air Conditioners (ACs)	Rs. Crore
368	275003	Consumer durables	Ceiling, Table or Pedestal Fans (Other Than Industrial/Exhaust Fans) and Parts Thereof	Rs. Crore
369	275004	Consumer durables	Non-Electric Cooking Heating Appliances (e.g., Gas Stoves)	Rs. Crore
370	279002	Capital goods	UPS and Solid-State Drives	Th.Nos.
371	279003	Intermediate goods	Articles of Graphite or Carbon Used for Electrical Purposes Including Carbon Electrodes and Carbon Brushes	Th.Nos.
372	281104	Capital goods	Steam/Vapour, Wind and Other Turbines	Rs. Crore
373	281107	Capital goods	Stationary and Internal Combustion Piston Engines Not for Motor Vehicles	Rs. Crore
374	281301	Capital goods	Air/Gas Compressors of All Types (Including Refrigeration Compressors) and Parts Thereof	Rs. Crore
375	281302	Capital goods	Pumps of All Types (Centrifugal, Hydraulic, Positive Displacement, Gear, Screw, Gravity, Steam, Boiler Feed, Valveless Pumps, etc.)	Rs. Crore
376	281304	Capital goods	Valves, All Types	Rs. Crore
377	281401	Intermediate goods	Bearing Housings	Th.Nos.
378	281401	Intermediate goods	Roller and Ball Bearings	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
379	281402	Intermediate goods	Gearboxes, Other Than for Motor Vehicles	Rs. Crore
380	281501	Capital goods	Furnaces and Ovens for Roasting, Melting and Heat Treatment of Ores, Pyrites or Metals	Rs. Crore
381	281601	Capital goods	Lifts and Other Hydraulic Equipment	Rs. Crore
382	281602	Capital goods	Material Handling, Lifting and Hoisting Equipment	Rs. Crore
383	281604	Capital goods	Cranes – All Types and Parts Thereof	Rs. Crore
384	281800	Capital goods	Sawing Machines	Rs. Crore
385	281901	Capital goods	Commercial Deep Freezers, Refrigerators, Chillers and Air-Cooling Units	Rs. Crore
386	281902	Intermediate goods	Air Conditioners for Motor Vehicles	Rs. Crore
387	281903	Capital goods	Fire-Fighting Equipment	Rs. Crore
388	281904	Capital goods	Weighing Machinery	Rs. Crore
389	281905	Capital goods	Filtering or Purifying Machinery and Apparatus	Rs.Lakhs
390	281907	Capital goods	Packing or Wrapping Machinery	Rs. Crore
391	281999	Capital goods	Industrial Fans	Th.Nos.
392	282101	Capital goods	Agricultural Tractors	Th.Nos.
393	282104	Capital goods	Dumpers and Loaders	Rs. Crore
394	282104	Capital goods	Harvesters and Threshers	Rs. Crore
395	282199	Capital goods	Agricultural Machinery Including Dryers and Sorters	Rs. Crore
396	282201	Capital goods	Lathes	Rs. Crore
397	282201	Capital goods	Machine Tools for Turning, Drilling, Milling, Shaping, Planing, Boring and Grinding (Other Than Lathes)	Rs. Crore
398	282300	Capital goods	Moulding Machines	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
399	282403	Capital goods	Construction Machinery/Equipment (Including Bulldozers and Road Rollers)	Rs. Crore
400	282405	Capital goods	Concrete Mixer Lorries Including Concrete Pumps	Rs. Crore
401	282499	Capital goods	Mining Machinery and Parts Thereof	Rs. Crore
402	282502	Capital goods	Milling Machinery for Rice, Cereals and Dried Leguminous Vegetables	Rs. Crore
403	282503	Capital goods	Machinery for Industrial Preparation or Manufacture of Food and Beverages, Including Fats and Oils	Rs. Crore
404	282599	Capital goods	Sugar Machinery	Rs. Crore
405	282601	Capital goods	Textile Machinery	Rs. Crore
406	282902	Capital goods	Machinery for Manufacturing Rubber or Plastic Products	Rs. Crore
407	282905	Capital goods	Pharmaceutical Machinery	Rs. Crore
408	291001	Consumer durables	Passenger Cars	Rs. Crore
409	291002	Capital goods	Commercial Vehicles	Rs. Crore
410	291005	Capital goods	Motor Car Engines	Rs. Crore
411	292001	Intermediate goods	Bus and Minibus Bodies/Chassis	Rs. Crore
412	292001	Intermediate goods	Truck, Lorry and Trailer Bodies/Chassis	Rs. Crore
413	292002	Capital goods	Trailers and Semi-Trailers, Except Self-Loading or Self-Unloading Types	Rs. Crore
414	293001	Intermediate goods	Auto Components, Spares and Accessories	Rs. Crore
415	293001	Intermediate goods	Axles	Rs. Crore
416	293001	Intermediate goods	Gearboxes for Motor Vehicles	Rs. Crore
417	293001	Intermediate goods	Wheel Rims	Rs. Crore
418	293005	Intermediate goods	Head/Tail Lamps	Rs. Crore
419	301101	Capital goods	Shipbuilding and Parts Thereof	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
420	302001	Capital goods	Diesel-Electric Locomotives	Numbers
421	302002	Capital goods	Railway Rolling Stock/Parts, Maintenance or Service Vehicles	Numbers
422	302002	Capital goods	Railway Coaches Including Metro Coaches	Numbers
423	302003	Capital goods	Railway Wagons	Numbers
424	302004	Intermediate goods	Railway Brake Gear	Rs. Crore
425	302005	Capital goods	Railway Signalling Equipment – Electrical/Mechanical	Numbers
426	303006	Intermediate goods	Parts of Aircraft and Spacecraft	Rs. Crore
427	309101	Consumer durables	Two-Wheelers (Motorcycles/Scooters)	Rs. Crore
428	309104	Intermediate goods	Parts and Accessories of Motorcycles/Mopeds and Sidecars	Rs. Crore
429	309201	Consumer durables	Bicycles	Rs. Crore
430	310101	Consumer durables	Wooden Furniture	Rs. Crore
431	310201	Consumer durables	Plastic Furniture	Rs. Crore
432	310202	Consumer durables	Mattresses Made of Foam/LRPU, Coir or Rubberized Coir	Rs. Crore
433	310301	Consumer durables	Steel Almirahs	Rs. Crore
434	310301	Consumer durables	Steel/Metal Furniture	Rs. Crore
435	321101	Consumer durables	Gold Jewellery (Studded or Unstudded)	Rs. Crore
436	321104	Consumer durables	Cut and Polished Diamonds	Rs. Crore
437	322001	Consumer durables	Musical Instruments and Parts Thereof	Rs. Crore
438	323000	Consumer durables	Carrom Boards	Rs. Crore
439	323000	Consumer non-durables	Cricket Balls	Th.Nos.
440	323000	Consumer durables	Cricket Bats	Th.Nos.
441	323000	Consumer durables	Gymnasium/Athletics Articles and Equipment	Rs. Crore

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
442	323000	Consumer non-durables	Rugby/Basketball/Football/Volleyballs	Rs. Crore
443	323000	Consumer non-durables	Sports Goods – Parts & Accessories	Rs. Crore
444	324099	Consumer durables	Games & Toys (Excluding Video Game Machines and Other Mechanical/Electrical Gaming Equipment for Parlours/Fairs)	Rs. Crore
445	325004	Consumer non-durables	Syringes	Rs. Crore
446	325007	Intermediate goods	Lenses of All Kinds	Rs. Crore
447	325007	Consumer durables	Spectacles, Sunglasses and Safety Glasses Including Frames and Mountings	Th. Nos.
448	325009	Consumer durables	Stents	Rs. Crore
449	325099	Capital goods	Medical, Surgical or Veterinary Instruments and Appliances (Except Syringes)	Rs. Crore
450	329001	Consumer non-durables	Stationery Items	Rs. Crore
451	329002	Consumer durables	Safety Helmets	Th. Nos.
452	329003	Consumer durables	Umbrellas and Parts Thereof	Rs. Crore
453	329004	Intermediate goods	Human Hair Articles	Rs. Crore
454	329005	Consumer non-durables	Brooms, Brushes, Hand-Operated Mechanical Floor Sweepers (Non-Motorized) and Mops	Rs. Crore
455	329007	Consumer durables	Zippers	Rs. Crore
456	329099	Consumer durables	Handicraft/Decorative Fancy Items	Rs. Crore
457	329099	Consumer durables	Sculptures	Rs. Crore
458	329099	Consumer non-durables	Toothbrushes	Th. Nos.
459	351001	Primary goods	Electricity Generation from Non-Renewable Sources	GWH
460	351003	Primary goods	Electricity Generation from Renewable Sources	GWH

Sr. No.	NIC 2025	Use Based Categories	Items Group	A/c Unit
461	360099	Primary goods	Water Supply	Number of connections
462	37 & 38	Primary goods	Sewerage & Waste Management	Number of connections
463	352001	Primary goods	Gas Supply	Th. Cubic meter

Annexure-IV

List of dropped items

Sr. No.	Item Group 2011-12
1	Acetic Acid
2	Calcium Carbonate
3	Caprolactam
4	Expandable Polystyrene, EPS (thermocol)
5	Hydrogen Peroxide
6	Isopropyl alcohol
7	Liquid chlorine
8	Methanol
9	Monoethylene glycol, MEG
10	PTFE (TEFLON)
11	Air Coolers
12	Air filters
13	Antiseptics and disinfectants (e.g., Povidone iodine, butadiene)
14	Anti-tuberculosis medicines (e.g., Ethambutol, Rifampicin, Isoniazid, Pyrazinamide, etc.)
15	Blank digital media for recording
16	Butter
17	Capsules
18	Conveyors- non-roller type
19	DC power supply
20	Digital indicator - all types
21	Digital media for electronic media players
22	Electric filament type lamps
23	Electrical steel laminations
24	Electronic/ electrical conductor wires (single or multiple strands)
25	Fatty Acid
26	Fluorescent Tubes and CFLs
27	Gram powder (besan)
28	Hinges
29	Honey, artificially preserved
30	Incandescent Lamps
31	Instant food (ready to eat)

Sr. No.	Item Group 2011-12
32	Iodized Salt
33	Jelly Filled Cables
34	LCD/ LED monitor
35	Leather garments
36	Machinery & equipment for defence support
37	Meat of goat, fresh or chilled
38	Medical/ surgical accessories
39	Medicated shampoos
40	Narrow fabrics, ornamental trimmings and silk embroidery
41	Nylon rope
42	Other diagnostic equipments including ECG and EEG machines
43	Other meats of crustacean/ molluscs and seafood
44	Phosphoric acid
45	Power generating equipment
46	Printing machinery
47	Rawa(sooji)
48	Rubber cloth/ sheet
49	Rubber tread
50	Separators including decanter centrifuge
51	Sewing machines
52	Sodium Silicate
53	Table Tennis Table
54	Thermoforming products of plastic
55	Tubes for Bicycle/ Tricycle/ Rickshaw tyres
56	Tubes for Light Motor Vehicles (LMV) tyres
57	Welding machinery- electrical
58	Wines
59	Zinc sulphate
60	Kerosene
61	PET coke
62	Man-made fibres
63	Grounds Nuts oil
64	Castor seed oil