

Parameters for Performance Review of Commodity

GUR

1. Background

a. Brief about the commodity such as sample picture, lifecycle and various varieties/grade of the commodity found in India

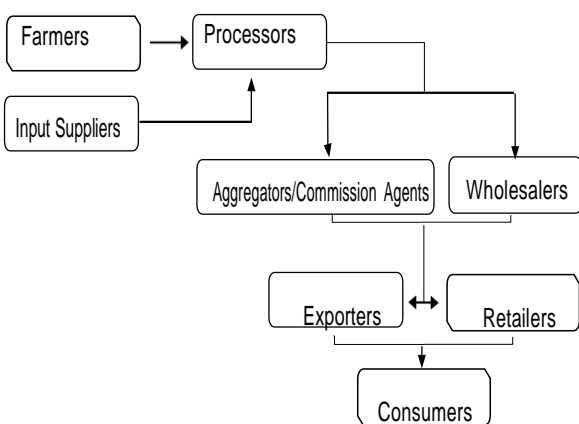
Gur/Jaggery is a pure, traditional, unrefined form of sweetener. It is a natural mixture of sugar and molasses. It is a low grade non-centrifugal sweetener prepared from Sugarcane and certain species of palm, consumed in India, Pakistan, Bangladesh, Africa, Myanmar, China, Indonesia, Brazil and many other countries. In India, Gur/Jaggery is mainly produced from Sugarcane.



If pure clarified Sugarcane juice is boiled, what is left [usually possessing sucrose (65-85%)] as solid is Gur/Jaggery. It is a brown raw mass of sucrose which gets its color because of other elements found in concentration such as wood, ash and bagasse. It is different from Khandsari sugar, which is a finely granulated, crystallized Sugar that contains 94-98 % sucrose. It differs from refined Sugar to the extent that the latter mainly consists of glucose and fructose, while the prior contains glucose and sucrose. Gur/Jaggery also has minerals and vitamins which are absent in refined sugar.

Gur/ Jaggery is processed commodity, its fresh production starts after the Sugarcane is harvested in different regions of India. Sugarcane harvesting starts from October onwards. Peak months of operations of Gur processing mills are October to February. Seasonality is in supply not in demand.

Sugarcane Harvesting Season (India)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
India												

Life Cycle: Value Chain of the Commodity	Major Varieties /Grade
 <pre> graph TD FS[Farmers] --> P[Processors] IS[Input Suppliers] --> P P --> ACA[Aggregators/Commission Agents] P --> W[Wholesalers] ACA --> E[Exporters] ACA --> R[Retailers] W --> R E --> C[Consumers] R --> C </pre>	<p>Major Varieties: Not</p> <p>Applicable NCDEX Quality</p> <p>Parameters</p> <p>100% dry golden brown Cane Gur of Chaku type of the following specifications:</p> <ul style="list-style-type: none"> • Sucrose (on dry basis) percent by mass: 75-80 % min • Reducing sugars (on dry basis) percent by mass: 10-15% max • Moisture: 10 % max • Sulphur Dioxide (on dry basis) percent by mass: 150ppm max • Water insoluble matter (on dry basis) percent by mass: 1.5 % max • Sulphated Ash (on dry basis) percent by mass: 3.5% max • Ash insoluble in Dilute Hydrochloric

	Acid (on drybasis) percent by mass: 0.3% max
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Table: Reference Years for Commodities

Sl. No.	A	B	C
Crop Season	Kharif	Kharif (Long Duration crop)	Rabi
Crops	Paddy, Maize, Bajra, Moong, Soybean, Guar seed, Kapas, Sesame Seed	Castor seed and Turmeric	Wheat, Barley, Chana, RM Seed, Coriander, Jeera
Relevant Processed commodities	Guar gum, Soybean meal, Soy oil, Cotton, Cotton seed Oil cake, Gur, CPO	Castor Oil	-
Sowing Time	July onwards	July onwards	October onwards
Harvesting Time	Oct onwards	Jan onwards	March onwards
Reference Year Financial Year 2022-23 (Apr-Mar)			
Corresponding Years			
Production Year (PY)	2022-23 (July-Sept)	2021-22 (July-June)	2021-22 (July-June)
Marketing Year (MY)	2022-23 (Oct-Sept)	2022-23 (Jan/Feb-Dec/Jan)	2022-23 (Mar/Apr - Feb/Mar)
Calendar Year (CY)	2022 (Jan-Dec)	2022 (Jan-Dec)	2022 (Jan-Dec)
Relationship b/w Various Years	Current Financial Year = Current Production Year = Current Marketing Year = Calendar Year	Current Financial Year = Previous Production Year = Current Marketing Year = Current Calendar Year	Current Financial Year = Previous Production Year = Current Marketing Year = Current Calendar Year
Example	FY 2022-23= PY 2022-23= MY 2022-23= CY 2022	FY 2022-23= PY 2021-22 = MY 2022-23= CY 2022	FY 2022-23= PY 2021-22 = MY 2022-23= CY 2022

Note: Coffee is a plantation crop; hence, it is not classified under either Kharif or Rabi season in the above table.

Explanatory Notes:

- India is a vast country and various crops are sown and harvested at different point of time. However, two major crop seasons, are there i.e. Kharif & Rabi. Apart from it, Zaid/Summer season is also there.
- Crop seasons are classified based upon sowing time. Normally Kharif season sowing starts from mid-June/July and new crop arrivals begin from Oct/Nov. However, early/late sowing/harvesting also takes place. Rabi season sowing usually takes place mainly from October/November and harvesting starts from March/April. Early/late sowing/harvesting also takes place. Summer crops/Zaid crops are short duration crops mainly sown during January-March and harvested during April-June.
- “Production Year” is considered as “July to June”. With the start of monsoon rains during June/July the sowing of Kharif season starts and they are harvested during Sept/Oct. From Oct onwards the sowing of Rabi season crops starts and harvesting usually takes place during March/April. Thus, a single production cycle completes

between July-Sept period covering Kharif, Rabi and Zaid crops. Thus production year remains same for all season crops and the period corresponds to July-Sept.

- “Marketing Year” for each crops starts from beginning of the harvest time i.e. from start of new crop produce arrivals in the market. Thus, for Kharif crops Marketing Year is generally considered as “October to September”, while for Rabi crops Marketing Year is considered as “April to March”. However, Marketing Year may vary slightly for some of the crops depending upon early/late maturity/harvesting.
- For processed commodities, their production starts after the start of new season crop arrivals of their underlying crop.

b. Commodity fundamentals and balance sheet as per the following format (to be prepared based on publicly available information on best effort basis):

Table - Fundamentals & Balance sheet (quantity)

(In Lakh Tonnes)

Global Scenario	Previous FY (2021-22)	Current FY (2022-23)
Opening Stocks	NA	NA
Production	NA	NA
Imports	NA	NA
Total Supply	NA	NA
Exports	NA	NA
Domestic Consumption	NA	NA
Closing Stocks	NA	NA

NA: Data is not available in the public domain. Gur is not produced on a commercial scale globally.

(In Lakh Tonnes)

Indian Scenario	Previous FY (2021-22)	Current FY (2022-23) (P)
Opening Stocks	NA	NA
Production	70.60	78.62
Imports	0.00	0.00
Total Supply	NA	NA
Exports	0.42	0.40
Domestic Consumption	NA	NA
Closing Stocks	NA	NA

Source:

Gur production: Ministry of Agriculture - it is derived from Sugarcane Production considering:

1. Cane diversion ratio of 10.9% for FY 2021-22 and 11.18% for 2022-23
2. Recovery Rate of Gur from crushed Cane @ 15% as per market feedback

Import/Export: Ministry of Commerce; HS codes used are 17011310 and 7011410; For FY 2022-23, Import and export data is available only for period of Apr 2022 to Feb 2023 (HS code 091030);

NA: Data is not available in the public domain; P: Provisional

Gur is produced by processing Sugarcane. Sugarcane is a Kharif season crop in India.

Please refer to Table entitled “Reference Years for Commodities” to know type of years corresponding to financial year.

(In Lakh Tonnes)

Rank	Top 10 Major Producing Countries			Top 10 Major Consuming Countries		
	Country	Previous FY (2021-22)	Current FY (2022-23)	Country	Previous FY (2021-22)	Current FY (2022-23)
	NA			NA		

NA: Data is not available in the public domain.

As per market feedback, India is considered as the largest producer of Gur/Jaggery with a total of more than 70% of global production.

(In Lakh Tonnes)

Rank	Top 10 Major Exporting Countries			Top 10 Major Importing Countries		
	Country	Previous FY(2021-22)	Current FY (2022-23)	Country	Previous FY (2021-22)	Current FY (2022-23)
	NA			NA		

NA: Data is not available in the public domain.

(In Lakh Tonnes)

Top 10 Major producing states in India			
Rank	States	Previous FY (2020-21)*	Current FY (2021-22)* (P)
1	Uttar Pradesh	27.03	25.34
2	Maharashtra	19.23	23.74
3	Karnataka	8.59	11.13
4	Tamil Nadu	2.98	3.76
5	Gujarat	2.28	2.39
	Others*	9.19	9.11
	Total	69.31	75.47

Source:

Gur production: Indian Sugar Mills Association (ISMA) (February 2023 Report) - it is derived from Sugarcane Production considering:

3. Cane diversion ratio of 11.5% for FY 2020-21 and 10.9% for FY 2021-22
4. Recovery Rate of Gur from crushed Cane @ 15% as per market feedback

State-wise Production data is available only up to 2021-22 in the public domain

*: The share of other states (except for top 5 states) in total domestic production is negligible.

c. Major changes in the policies governing trade in the spot markets of the commodity (FY 2022-23)

Date	Major Policies governing trade and Changes
24-May-2022	The central Govt. amendment in the Export Policy of Sugar from "Free" to "Restricted" w.e.f June 01, 2022 (Reference: DGFT Notification no. 10/2015-20, dated May 24, 2022)
03-Aug-2022	Govt. hiked FRP of Sugarcane for Sugar season 2022-23 to Rs 305 per quintal for the basic recovery rate of 10.25%, as against FRP of Rs 290 per quintal fixed for Sugar season 2021-22. the Govt. also raised base recovery rate for the floor price to 10.25% from 10% earlier.
29-Oct-2022	The Indian government is set to allow the resumption of sugar exports through permits from November 1 and as the first step to facilitate it, extended the volume cap on shipments until October 31, 2023. At least 6 million tonnes (mt) of sugar will be allowed for exports to start with.
22-Nov-2022	The Directorate General of Foreign Trade (DGFT) has issued a notice and as per that, the quantity of 5841 MT (raw/refined) sugar is to be exported to European Union and quantity of 8606 MTRV raw cane sugar is to be exported to USA under TRQ scheme from 1st October, 2022, to 30th September, 2023. The quota will be operated by Agricultural and Processed Food Products Export Development Authority (APEDA).

Note: The above-mentioned policies may have some spillover impact on market sentiments for Gur, as Sugarcane forms the raw material for production of Gur. Any fluctuation in demand and supply of Sugarcane may have indirect impact on market fundamentals of Gur.

d. Geo political issues in the commodity and its impact on Indian scenario (FY 2022-23)

Date	Event	Key Details	Key Implications/Impact
	No specific Geo-political issues were seen during review period	NA	NA

NA: Not Applicable

2. Trading related Parameter
a. Monthly and Annual traded volume (quantity in appropriate units)

Month	Year	Symbol	Traded volume (MT)
Apr	2022	GUR	-
May	2022	GUR	-
June	2022	GUR	-
July	2022	GUR	-
August	2022	GUR	-
September	2022	GUR	-
October	2022	GUR	-
November	2022	GUR	-
December	2022	GUR	-
January	2023	GUR	-
February	2023	GUR	-
March	2023	GUR	-
Annual Traded Volume (MT) (April'22 to March'23)			-

b. Annual traded volume as proportion of total deliverable supply (quantity in appropriate units)

Symbol	Traded Volume (MT)	Deliverable Supply(MT)	Proportion
GUR	-	7,861,592	-

c. Annual traded volume as proportion of total annual production (quantity in appropriate units)

Symbol	Traded volume (MT)	Production(MT)	Proportion
GUR	-	7,861,592	-

d. Annual average Open interest as proportion of total production

Symbol	Average Open Interest (MT)	Production(MT)	Proportion
GUR	-	7,861,592	-

e. Annual average Open interest as proportion of total deliverable supply

Symbol	Average Open Interest (MT)	Deliverable supply(MT)	Proportion
GUR	-	7,861,592	-

f. Monthly and Annual value of trade (in Rs. Crores)

Month	Year	Symbol	Traded value (in Rs. Crores)
April	2022	GUR	-
May	2022	GUR	-
June	2022	GUR	-
July	2022	GUR	-
August	2022	GUR	-
September	2022	GUR	-
October	2022	GUR	-
November	2022	GUR	-
December	2022	GUR	-
January	2023	GUR	-
February	2023	GUR	-
March	2023	GUR	-
Annual Traded Volume (in Rs Crores) (April'22 to March'23)			-

g. Monthly and Annual quantity of delivery (in appropriate units)

Expiry Month	Year	Symbol	Total Delivery (in MT)
April	2022	GUR	-
May	2022	GUR	-
June	2022	GUR	-
July	2022	GUR	-
August	2022	GUR	-
September	2022	GUR	-
October	2022	GUR	-

November	2022	GUR	-
December	2022	GUR	-
January	2023	GUR	-
February	2023	GUR	-
March	2023	GUR	-
Annual value of delivery (in MT) (April'22 to March'23)			-

h. Monthly and Annual value of delivery (in Rs. Crores)

Expiry Month	Year	Symbol	Total Delivery Value (in Cr)
April	2022	GUR	-
May	2022	GUR	-
June	2022	GUR	-
July	2022	GUR	-
August	2022	GUR	-
September	2022	GUR	-
October	2022	GUR	-
November	2022	GUR	-
December	2022	GUR	-
January	2023	GUR	-
February	2023	GUR	-
March	2023	GUR	-
Annual value of delivery (in Crores) (April'22 to March'23)			-

i. Monthly and Annual Average Open Interest (OI) (in appropriate units)

Month	Year	Symbol	Average Open Interest (MT)
Apr	2022	GUR	-
May	2022	GUR	-
June	2022	GUR	-
July	2022	GUR	-
August	2022	GUR	-
September	2022	GUR	-
October	2022	GUR	-
November	2022	GUR	-

December	2022	GUR	-
January	2023	GUR	-
February	2023	GUR	-
March	2023	GUR	-
Annual Average OI (MT) (April'22 to March'23)			-

j. Annual average volume to open interest ratio

0.00%

k. Total number of unique members and clients who have traded during the financial year

Symbol	Member Count	Client Count
GUR	-	-

l. Ratio of open interest by FPOs/farmers/Hedge/VCP positions to total open interest (Annual average as well as maximum daily value)

Annual Average	N/A
Maximum Daily Value	N/A

m. Number of unique FPOs / farmers and VCPs/hedgers who traded in the financial year

Commodity	Count
GUR	0

Commodity wise client categorization is as per category details as provided by the members.

n. Algorithmic trading as percentage of total trading

Commodity	%
GUR	0.00%

o. Delivery defaults

Number of instances	0
Quantity involved	0
Value involved	0

3. Price Movement

- a. Comparison, correlation and ratio of standard deviation of Exchange futures price vis-à-vis international futures price (wherever relevant comparable are available).

Not applicable

- b. Comparison, correlation and ratio of standard deviation of Exchange futures price vis-à-vis international spot price (wherever relevant comparable are available) and domestic spot price (exchange polled price).

Not applicable

- c. Correlation between exchange futures & domestic spot prices along with ratio of standard deviation.

Correlation			
	<i>Futures</i>	<i>Spot</i>	<i>Mandi</i>
<i>Futures</i>	1	0.921411	NA
<i>Spot</i>	0.921411	1	NA

Standard Deviation			
	<i>Futures</i>	<i>Spot</i>	<i>Mandi</i>
<i>Futures</i>	1	1.208035	-
<i>Spot</i>	0.827791	1	-
<i>Mandi</i>	-	-	-

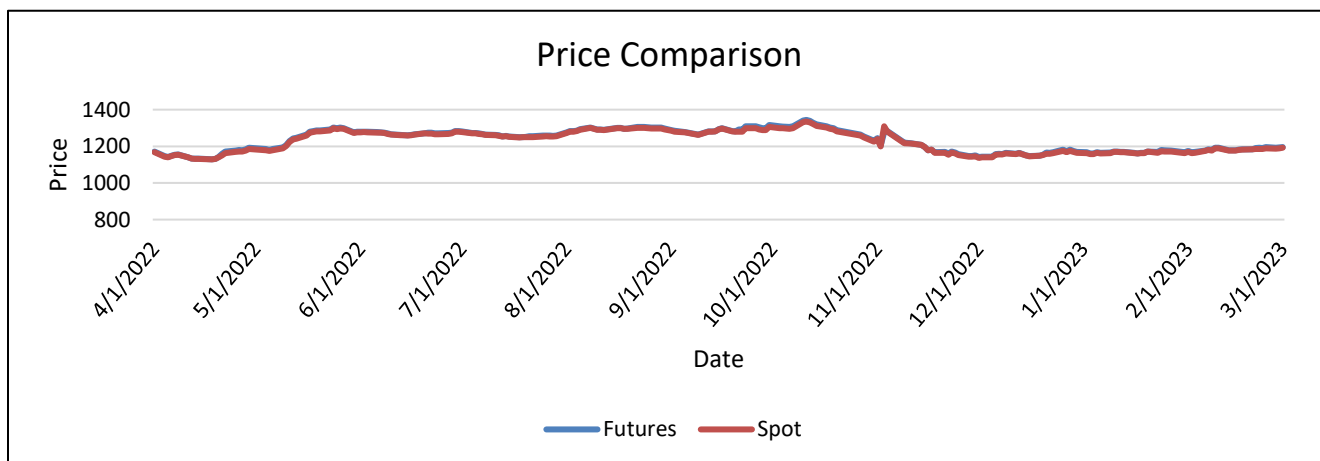
- d. Correlation between international futures & international spot prices along with ratio of standard deviation (wherever relevant comparable are available).

Not Applicable

- e. Comparison of Exchange polled price and mandi price (in case of agricultural commodities) / other relevant price (in case non-agricultural commodities) at basis centre.

Correlation			
	<i>Futures</i>	<i>Spot</i>	<i>Mandi</i>
<i>Futures</i>	1	0.921411	NA
<i>Spot</i>	0.921411	1	NA

Standard Deviation			
	<i>Futures</i>	<i>Spot</i>	<i>Mandi</i>
<i>Futures</i>	1	1.208035	-
<i>Spot</i>	0.827791	1	-
<i>Mandi</i>	-	-	-



Source: Spot and Future Prices: NCDEX

- f. **Maximum & Minimum value of daily futures price volatility and spot price volatility along with disclosure of methodology adopted for computing the volatility (Volatility calculated by Standard Deviation of daily returns for the period from 1 April 2022 to 31 March 2023).**

Volatility	Futures		Spot	
	Month	Value	Month	Value
Max	Nov	0.018	Nov	0.025
Min	Jul	0.00223	Jul	0.00217

- g. **Number of times the futures contract was in backwardation / contango by more than 4% for the near month contract in the period under review.**

Contango by more than 4% for near month contract	0
Backwardation by more than 4% for near month contract	0

4. Other Parameters

- a. **Qualitative and quantitative measure for Hedge effectiveness ratio (Methodology in Annexure I) and basis Risk (Volatility of Basis) along with disclosure of methodology adopted for such calculations.**

(Volatility calculated by Square root of Standard Deviation of daily returns for the period from 1 April 2022 to 31 March 2023)

	GUR
Basis Volatility	8.2
Hedge efficiency	1.00

The methodology for hedge efficiency ratio calculation is appended as Annexure 1

- b. **Details about major physical markets of the commodity vis-à-vis market reach in terms of availability of delivery centers (information to be provided state-wise and UT-wise).**

State	Major Physical Markets	NCDEX basis and Delivery Centers
Uttar Pradesh	Muzaffarnagar	Basis Center
	Hapur	
	Agra	
	Meerut	
Maharashtra	Kolhapur	
	Sholapur	
	Ahmednagar	
Gujarat	Anand	
	Rajkot	

- c. Details about major physical markets of the commodity and average Open Interest for each month generated from those regions.

State	UP
April 2022	0
May 2022	0
June 2022	0
July 2022	0
Aug. 2022	0
Sep. 2022	0
Oct. 2022	0
Nov. 2022	0
Dec. 2022	0
Jan. 2023	0
Feb. 2023	0
March 2023	0

Note – The OI for each month is classified based on the Member level. The Average OI is ongross level (Long OI + Short OI), in MT

Note - The OI for CP (Custodian Participant) is not mapped to any State/ location and hence not considered in the above data.

- d. Details, such as number and target audience, of stakeholders' awareness programs carried out by the exchange.

Following list of Awareness programme, Stakeholder engagement programme has conducted for FY 2022-23

Sr. Number	Programme	Location	Number of Participants
1	Awareness Programme	Kolkata	35
2	Awareness Programme	Surat	18
3	Awareness Programme	Guna, Madhya Pradesh	30
4	Awareness Programme	Anjar, Lutch, Gujarat	38
5	Awareness Programme	Raipur, Chhattisgarh	112
6	Awareness Programme	Patan, Gujarat	104
7	Awareness Programme	Nashik	200
8	Awareness Programme	Udaipur	150
9	Awareness Programme	Rajkot	100
10	Awareness Programme	Hissar	100
11	Awareness Programme	Nagpur, Maharashtra	120
12	Awareness Programme	Raipur	100
13	Awareness Programme	Gwalior, Madhya Pradesh	78
14	Awareness Programme	Bhopal , MP	54
15	Awareness Programme	Indore, Madhya Pradesh	47
16	Awareness Programme	Siliguri, West Bengal	39
17	Awareness Programme	Alipurduar, West Bengal	31
18	Awareness Programme	Meerut, Uttar Pradesh	30
19	Awareness Programme	Bhopal, Madhya Pradesh	44

20	Awareness Programme	Indore, Madhya Pradesh	80
21	Awareness Programme	Chennai, Tamil Nadu	24
22	Awareness Programme	Kanpur, Uttar Pradesh	60
23	Awareness Programme	Chindwara, MP	50
24	Awareness Programme	Seoni , MP	40
25	Awareness Programme	Kolkata	25
26	Awareness Programme	Raipur, Chattisgarh	136
27	Awareness Programme	Lucknow	177
28	Awareness Programme	Rourkela	65
29	Awareness Programme	Muzaffarnagar	70
30	Awareness Programme	Kochi	86
31	Awareness Programme	Bhilai	70
32	Awareness Programme	Thalamadla	80
33	Awareness Programme	Kolkata	45
34	Awareness Programme	Online	30
35	Awareness Programme	Online	18
36	Awareness Programme	Online	23
37	Awareness Programme	Odisha	9
38	Awareness Programme	Odisha	15
39	Awareness Programme	Karnataka	5
40	Awareness Programme	Bihar	18
41	Awareness Programme	West Bengal	6
42	Awareness Programme	Andhra Pradesh	29
43	Awareness Programme	Online	11
44	Awareness Programme	Online	7
45	Awareness Programme	Online	21
46	Awareness Programme	Online	6
47	Awareness Programme	Online	9
48	Awareness Programme	Online	14
49	Awareness Programme	Online	82
50	Awareness Programme	Online	28
51	Awareness Programme	Online	25
52	Awareness Programme	Online	50
53	Awareness Programme	Online	30
54	Awareness Programme	Online	25
55	Awareness Programme	Online	5
56	Awareness Programme	Online	10
57	Awareness Programme	Online	7
58	Awareness Programme	Online	13
59	Awareness Programme	Online	16
60	Awareness Programme	Online	23
61	Awareness Programme	Online	53
62	Awareness Programme	Online	17
63	Awareness Programme	Online	30
64	Awareness Programme	Online	15
65	Awareness Programme	Online	25
66	Awareness Programme	Online	35
67	Awareness Programme	Online	10
68	Awareness Programme	Online	30
69	Awareness Programme	Online	12
70	Awareness Programme	Online	6
71	Awareness Programme	Online	7
72	Awareness Programme	Online	20

73	Awareness Programme	Online	50
74	Awareness Programme	Online	30
75	Awareness Programme	Online	13
76	Awareness Programme	Online	10
77	Awareness Programme	Online	6
78	Awareness Programme	Online	6
79	Awareness Programme	Online	8
80	Awareness Programme	Online	13
81	Awareness Programme	Online	6
82	Awareness Programme	Online	25
83	Awareness Programme	Online	8
84	Awareness Programme	Online	14
85	Awareness Programme	Online	11
86	Awareness Programme	Online	10
87	Awareness Programme	Online	6
88	Awareness Programme	Online	9
89	Awareness Programme	Online	14
90	Awareness Programme	Online	16
91	Awareness Programme	Online	11
92	Awareness Programme	Online	8
93	Awareness Programme	Online	8
94	Awareness Programme	Online	13
95	Awareness Programme	Online	15
96	Awareness Programme	Online	25
97	Awareness Programme	Online	25
98	Awareness Programme	Online	26
99	Awareness Programme	Online	18
100	Awareness Programme	Online	52
101	Awareness Programme	Online	16

e. Steps taken / to be undertaken to improve hedging effectiveness of the contracts as well as to improve the performance of illiquid contracts.

- A. Creating awareness about hedging and targeting the major Traders/ Stockiest
- B. Awareness Programme in major trading centres as well as remote location
- C. One to one meeting with market participants and hedgers

5. Any other information to be disclosed as deemed important by the exchange or as suggested by the PAC.

NA

ANNEXURE I

Qualitative and quantitative measure for Hedge effectiveness ratio

Hedging Efficiency Methodology

Regression analysis is carried out between near month futures returns and NCDEX polled spot prices returns of the FY2022-23.

The R-Square value of the Regression analysis represents the “**Hedging Efficiency**”.

Note: -

Date for which spot prices were not available is not used for analysis.

Weekly returns are used for performing Regression Analysis.

The method used to calculate Hedging Efficiency does not consider liquidity risk because of this reason illiquid commodities can have high hedging efficiency.

References:

Ghosh, Ph.D, Nilanjan & Dey, Debojyoti & Moulvi, Nazir & Jain, Niteen & Sinha, Neha & Rachuri, Sarika.(2013). Hedging Efficiency—Measures and Empirical Study.