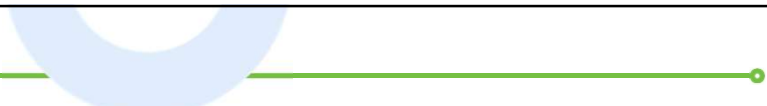
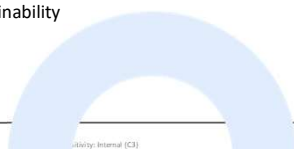



HINDUSTAN ZINC
 Zinc & Silver of India

Dariba Smelter Complex (DSC)











Innovative Mechanical Vapor Recompression (MVR) System

For High TDS Wastewater Treatment

CII NAEBP, Pune
Date - 11/09/2025

Presented By:
 Harish Chaturvedi Associate Manager, Environment
 Rishika Sharma Associate Manager, Sustainability
 Thayalan Babu Deputy Manager, Utility

Confidential
Sensitivity: Internal (C3)

1

Outline


HINDUSTAN ZINC
 Zinc & Silver of India



1 Overview of the business



4 Tangible & intangible benefits



7 Replication & Assimilation



2 Project overview & details



5 Present status



8 Challenges & mitigation



3 Timeline & milestone



6 Process details



9 Benchmarking

Confidential
Sensitivity: Internal (C3)



2

Company Profile



We have strategically expanded our **integrated business operations** in **northwest India** across the business segments of Mines (Zinc-Lead Mines); Smelters (Hydrometallurgical Zinc Smelters, Lead Smelters, Pyro Metallurgical Zinc-Lead Smelter); Captive Power Plants (CPP).



Total R&R
453.2 Mt



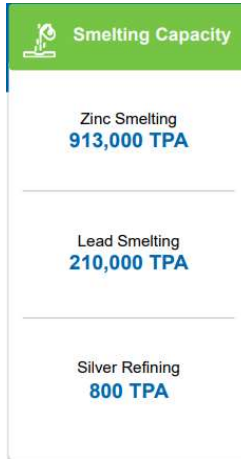
Metal capacity
1.12 Mt



Ore production
16.33 Mt



Total captive capacity
625.16 MW



India's only
integrated
producer of Zinc
and Lead

India's only
primary Zinc
Alloy
producer

India's only
integrated
and listed Silver
company

c.77% domestic
primary zinc
market share with a
consistent
c.51% EBITDA
margin

Confidential

Sensitivity: Internal (C3)



3

Sustainability & ESG Rating for FY 2025



S&P Global

86/1st Rank

Achieved top 1% ranking in S&P Global
sustainability yearbook in the 2nd
consecutive year



B+/A-

Climate change & water security
simultaneously



ICMM
International Council
on Mining & Metals

Hindustan Zinc Becomes the First Indian
Company to Join the International Council on
Mining and Metals (ICMM)



SUSTAINALYTICS

31.3

ESG Risk rating score

CRISIL
Ratings

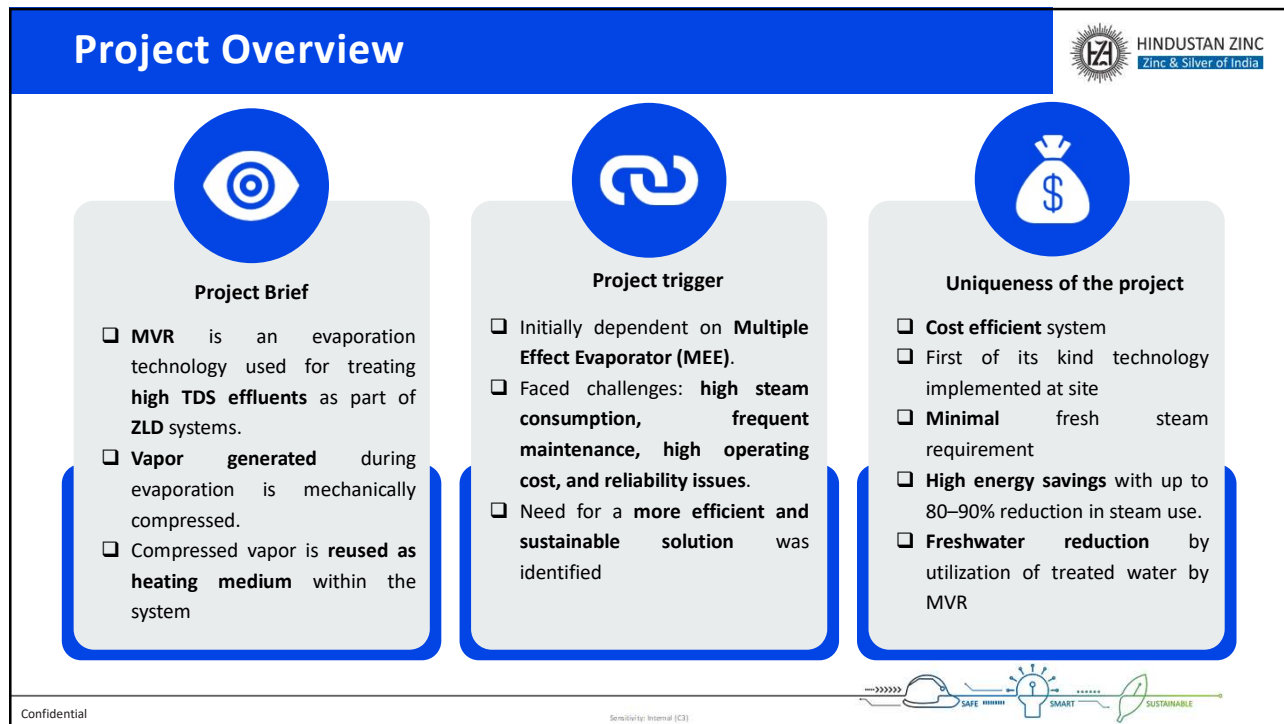
AAA

Robust financial performance, strong
governance, and sustainability practices.

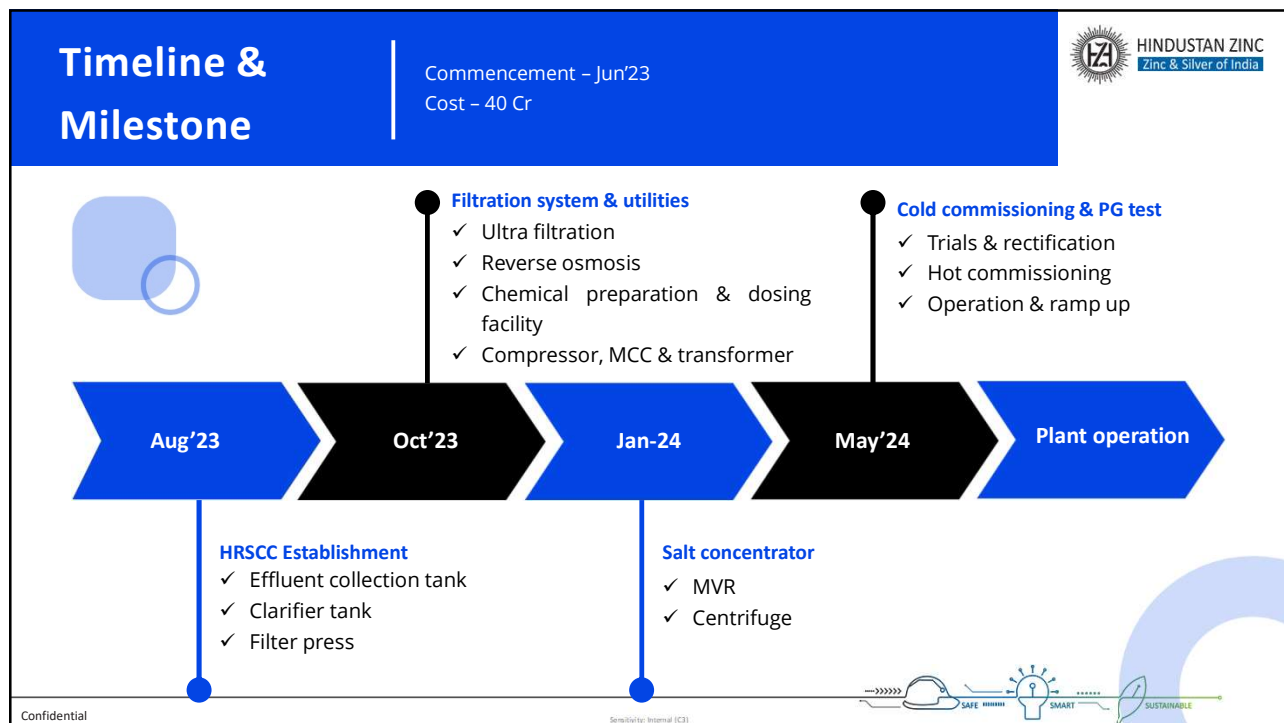
4

Sensitivity: Internal (C3)



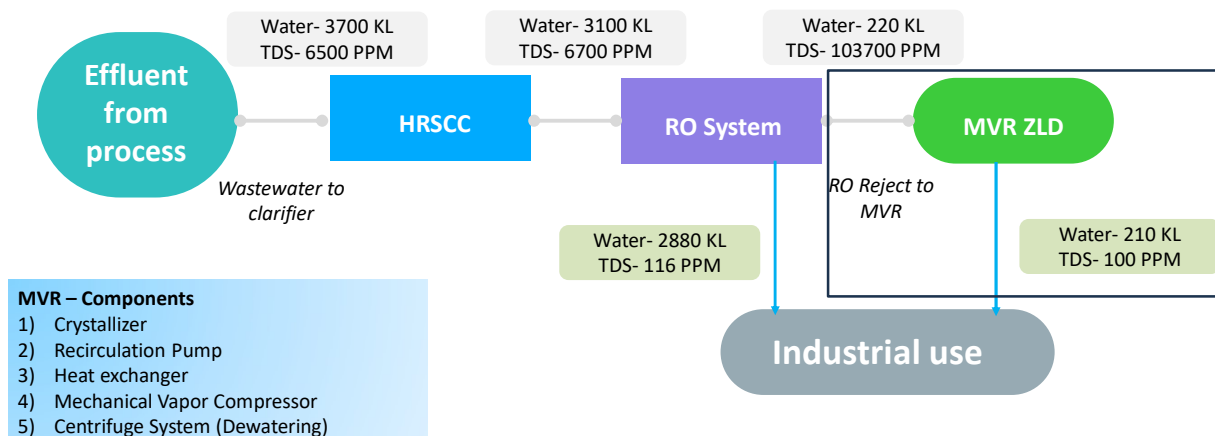


5



6

Process details



Confidential

Sensitivity: Internal (C3)



7

Project status- before & after scenario



The MVR plant is working with the 220 KLD capacity treating around 73,000 KL water annually by reducing the TDS of RO reject up to 100 PPM

	Multi Effect Evaporator (MEE)	Mechanical Vapor Recompression (MVR)
Equipment Availability	✓ 293 days annually	✓ 347 days annually (extra 54 days)
Feed cost & Water recovery	✓ 21 INR/KL ✓ 93 %	✓ 17 INR/KL ✓ 95 %
Steam consumption	✓ 30 tones/day	✓ No external steam required
Space utilization	✓ 1000 SQM	✓ 500 SQM
Maintenance & shut down	✓ Once in a month	✓ Once in a year

Confidential

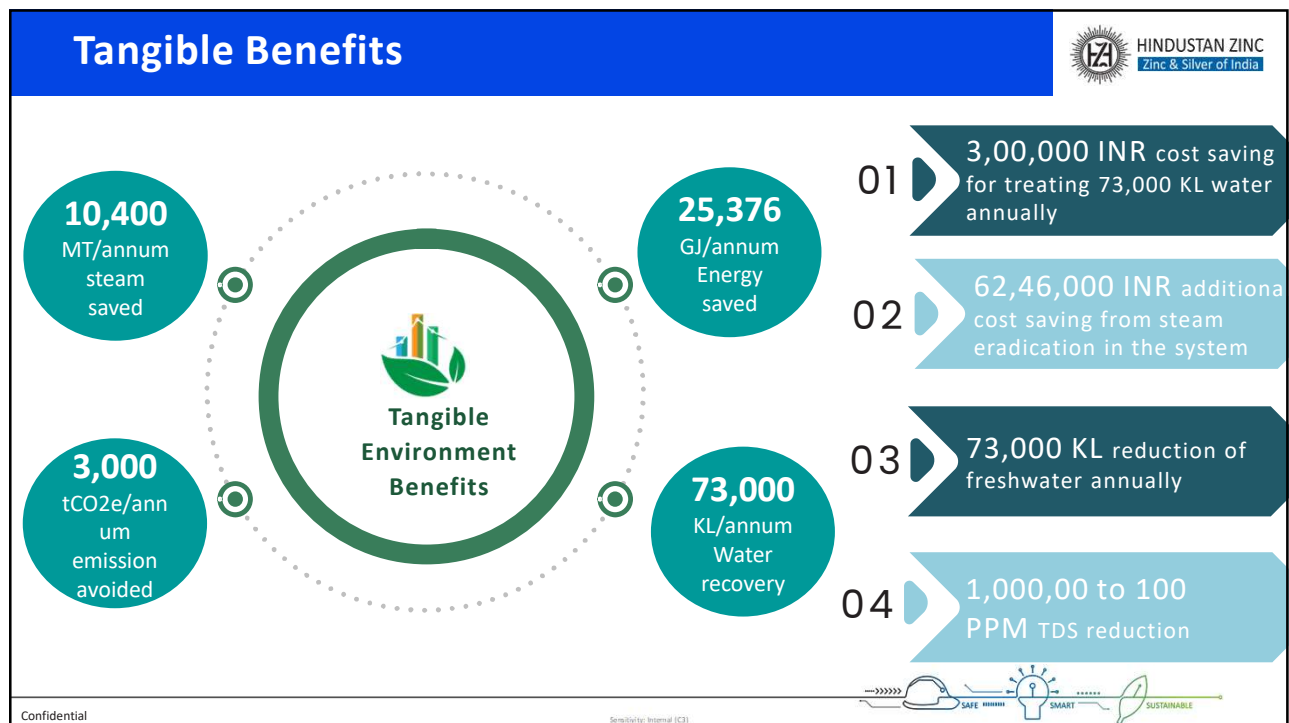
Sensitivity: Internal (C3)



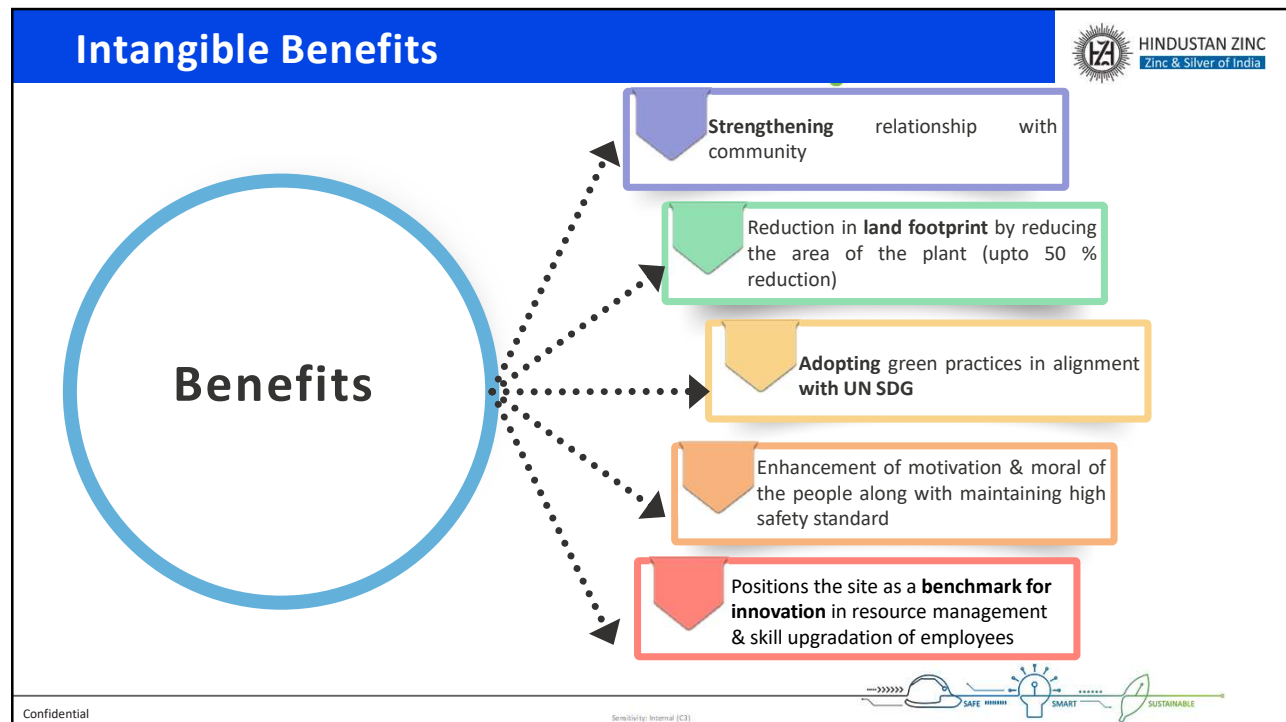
8



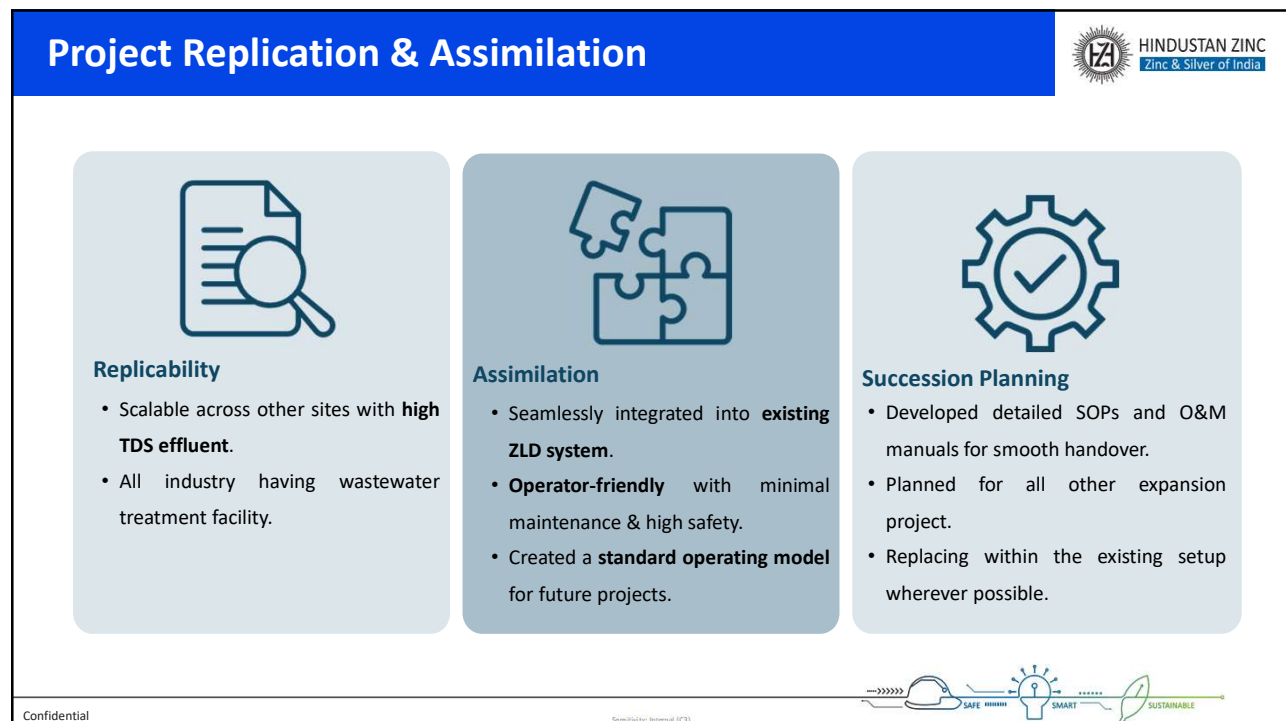
9



10

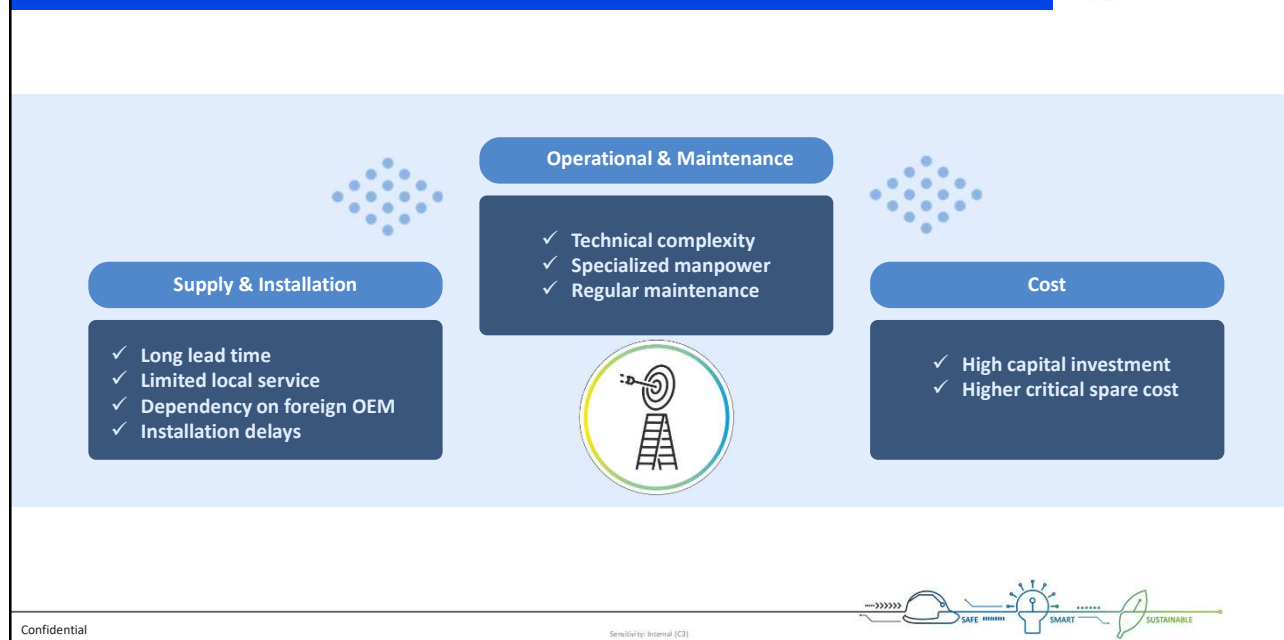


11



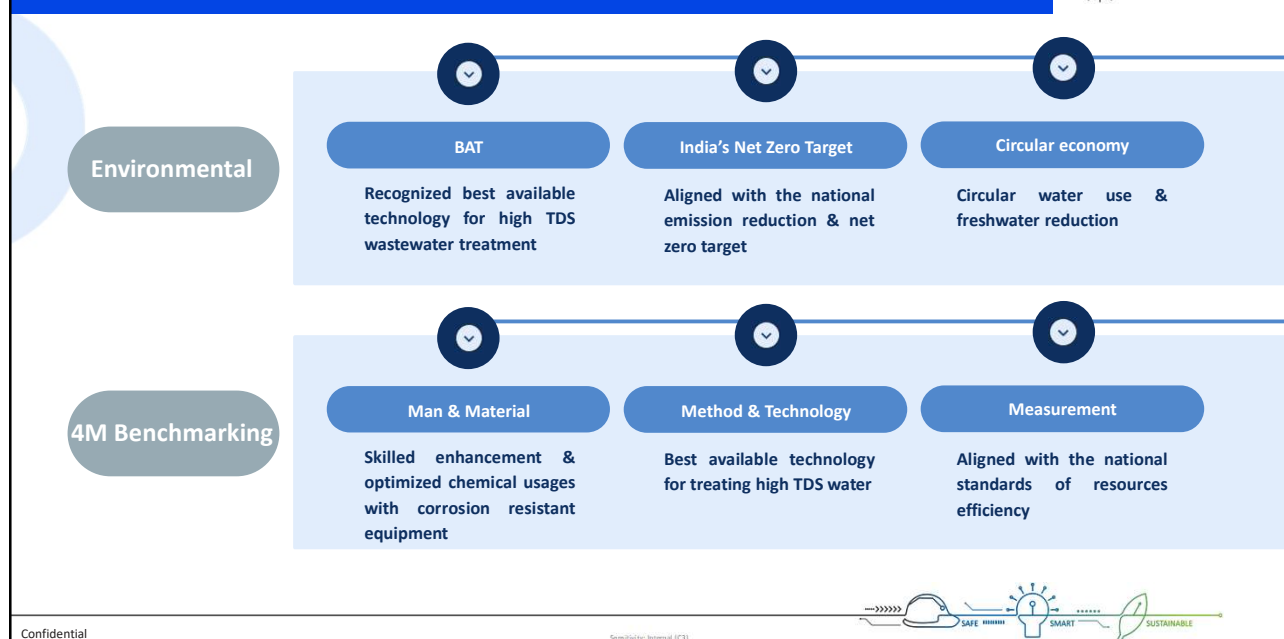
12

Challenges & mitigation during implementation



13

Benchmark with National Standard & Practices



14



HINDUSTAN ZINC
Zinc & Silver of India

Thank You



15



Reference

- 1) [Heat recovery \(including MVR and heat pumps\) | EE Metal](#)
- 2) [Mechanical Vapor Recompression for Energy Efficiency - R3 Sustainability](#)
- 3) [bing.com/ck/a?!&&p=d4de77fd00c033f0f44b103526f96bef8c9adfccf123e07729fd9eb5aae80da3JmltdHM9MTc1NzAzMDQwMA&ptn=3&ver=2&hsh=4&fclid=345cf4f4-da99-68af-3030-e2f2db6c692a&psq=Mechanical+recompression++MVR++As+best+practice&u=a1aHR0cHM6Ly9pbnNwZW5ldC5jb20vZW4vYXJ0aWN1bG8vbWVjaGFuaWNhbC12YXBvc11yZWVnbXBvZXNzaW9uLw&ntb=1](https://www.bing.com/ck/a?!&&p=d4de77fd00c033f0f44b103526f96bef8c9adfccf123e07729fd9eb5aae80da3JmltdHM9MTc1NzAzMDQwMA&ptn=3&ver=2&hsh=4&fclid=345cf4f4-da99-68af-3030-e2f2db6c692a&psq=Mechanical+recompression++MVR++As+best+practice&u=a1aHR0cHM6Ly9pbnNwZW5ldC5jb20vZW4vYXJ0aWN1bG8vbWVjaGFuaWNhbC12YXBvc11yZWVnbXBvZXNzaW9uLw&ntb=1)



Confidential

Sensitivity: Internal (C3)

16