

2013 | Asian Nitrogen
+ Syngas

New Projects and Expansion Capacity in India

How do they match upto future demand?

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Theme

- India is among the largest producers / consumers / importers of fertilisers
- Demand is increasing in India.
- Many companies are adding capacities in India, and entering into tie ups overseas.
- How much of future demand may be taken care of by such efforts ?

Structure of Presentation

1. Current status in India of major fertilisers, Urea, DAP, NP / NPK, SSP and MOP
2. For each major fertiliser, discuss
 - a. Estimate for Future Demand
 - b. Shortfall, i.e. extent by which Existing Production of 2012-13 is short of Future Demand
 - c. Key issues
 - d. Investments announced in India recently
 - e. Overseas investments proposed by Indian companies
3. Summarise how much of the Shortfall will be covered by these proposals

Much of the material herein pertains to proposals, interpretations and the future, all of which are subject to change. It should be used with caution. No claim is made to its completeness and accuracy. Views are personal

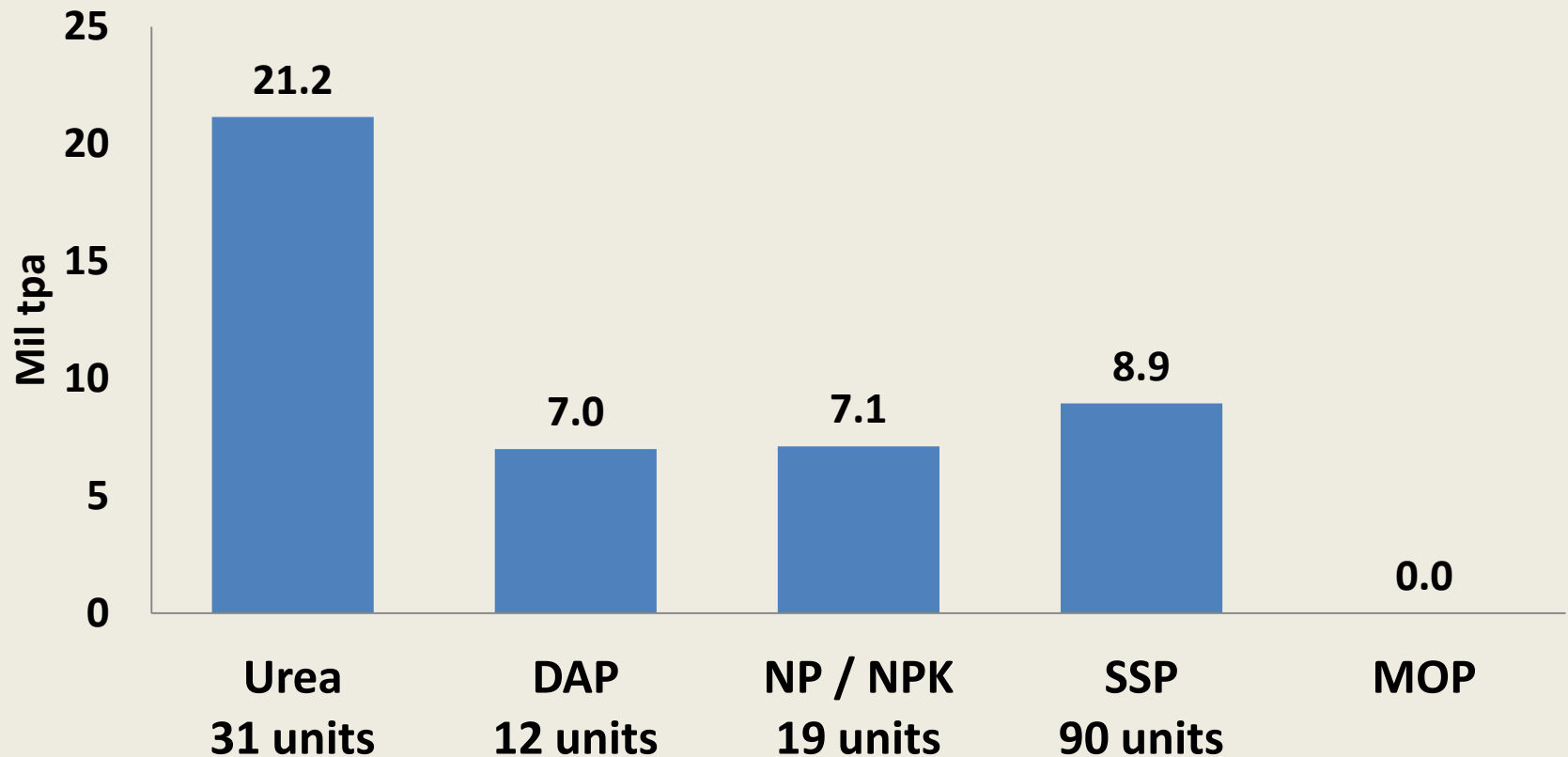
DISCLAIMER

Capacities, Production, Imports, Sales of major fertilisers:

Urea, DAP, NP / NPK, SSP and MOP

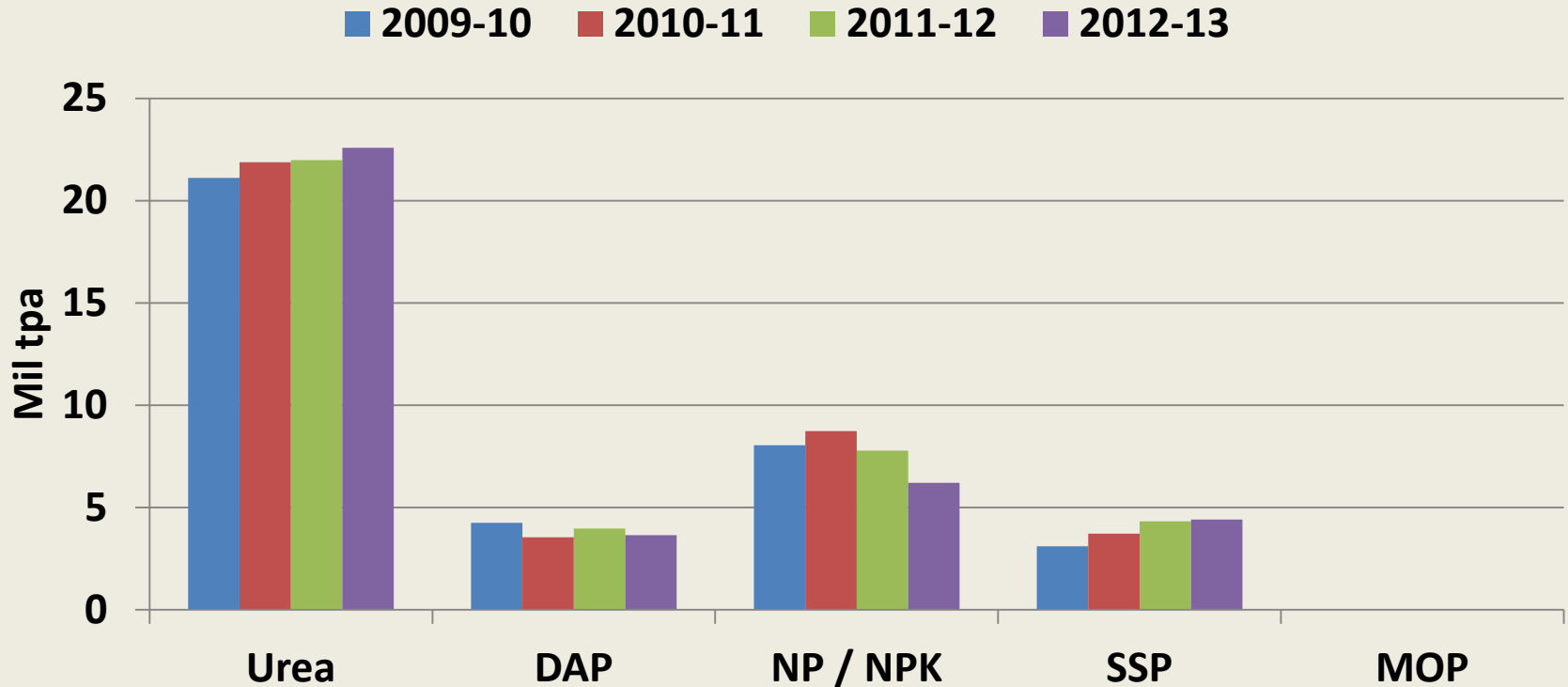
CURRENT STATUS IN INDIA

Capacities 2012-13



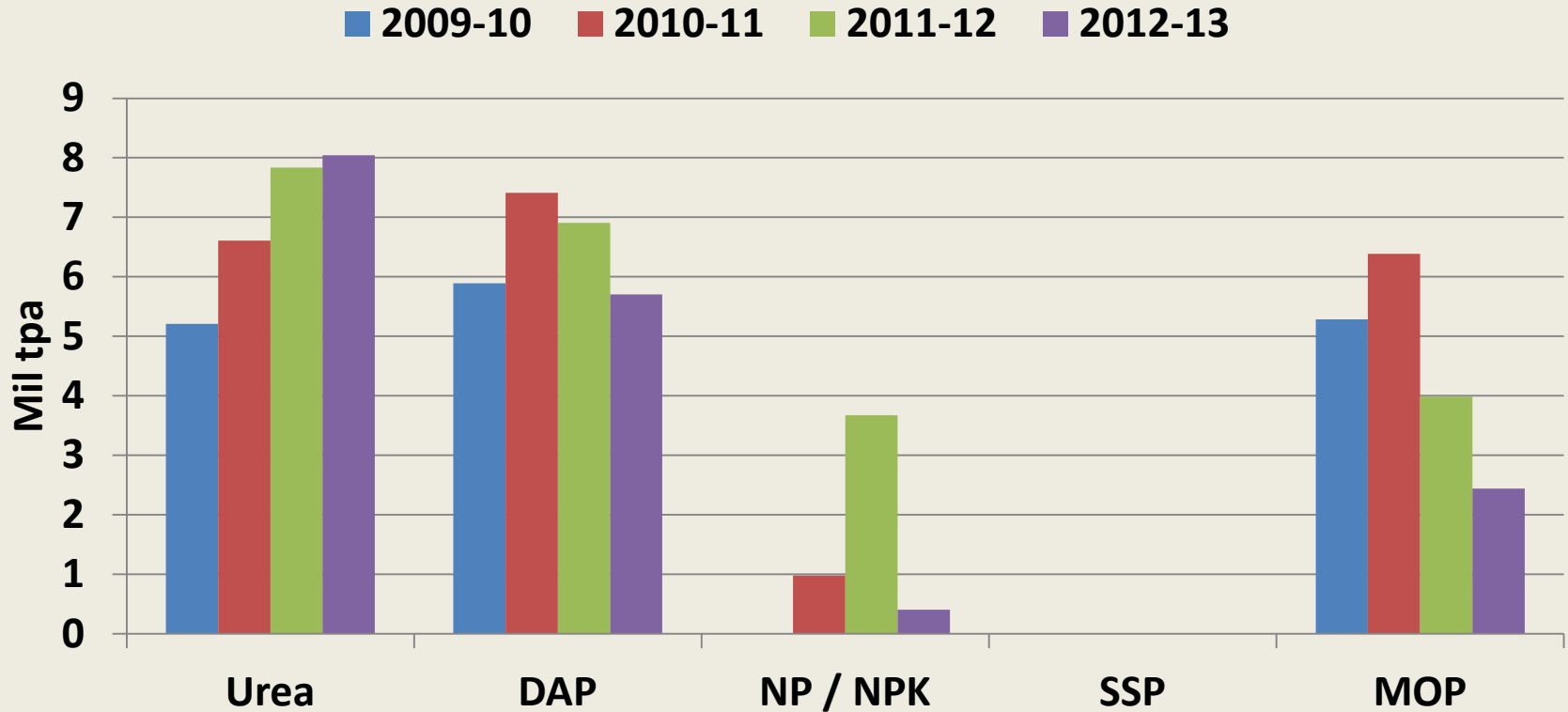
Total Capacity 44.2 mil tpa from 151 units

Production: Apr 2009- Mar 2013



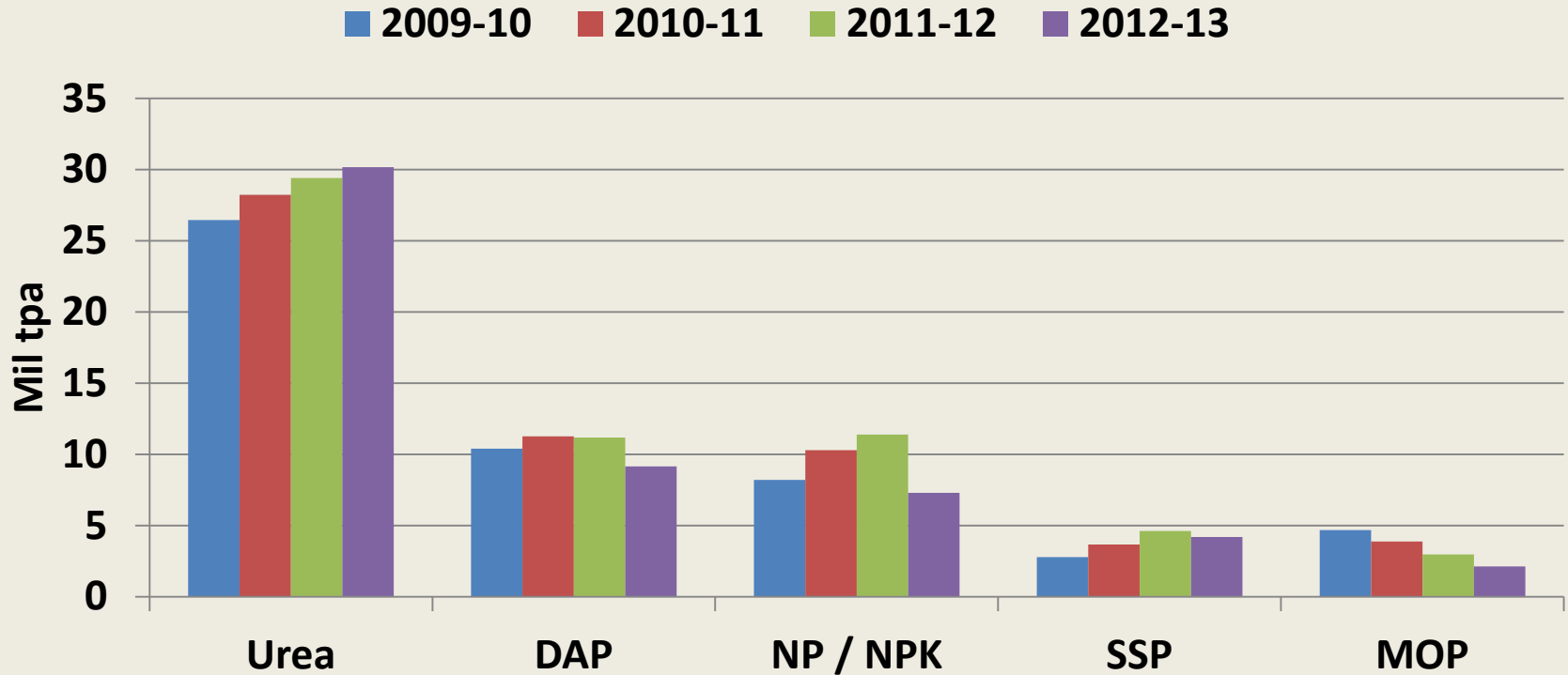
Production of DAP & NPK fertilisers declined in recent years, while Urea production increased. MOP nil

Imports Apr 2009- Mar 2013



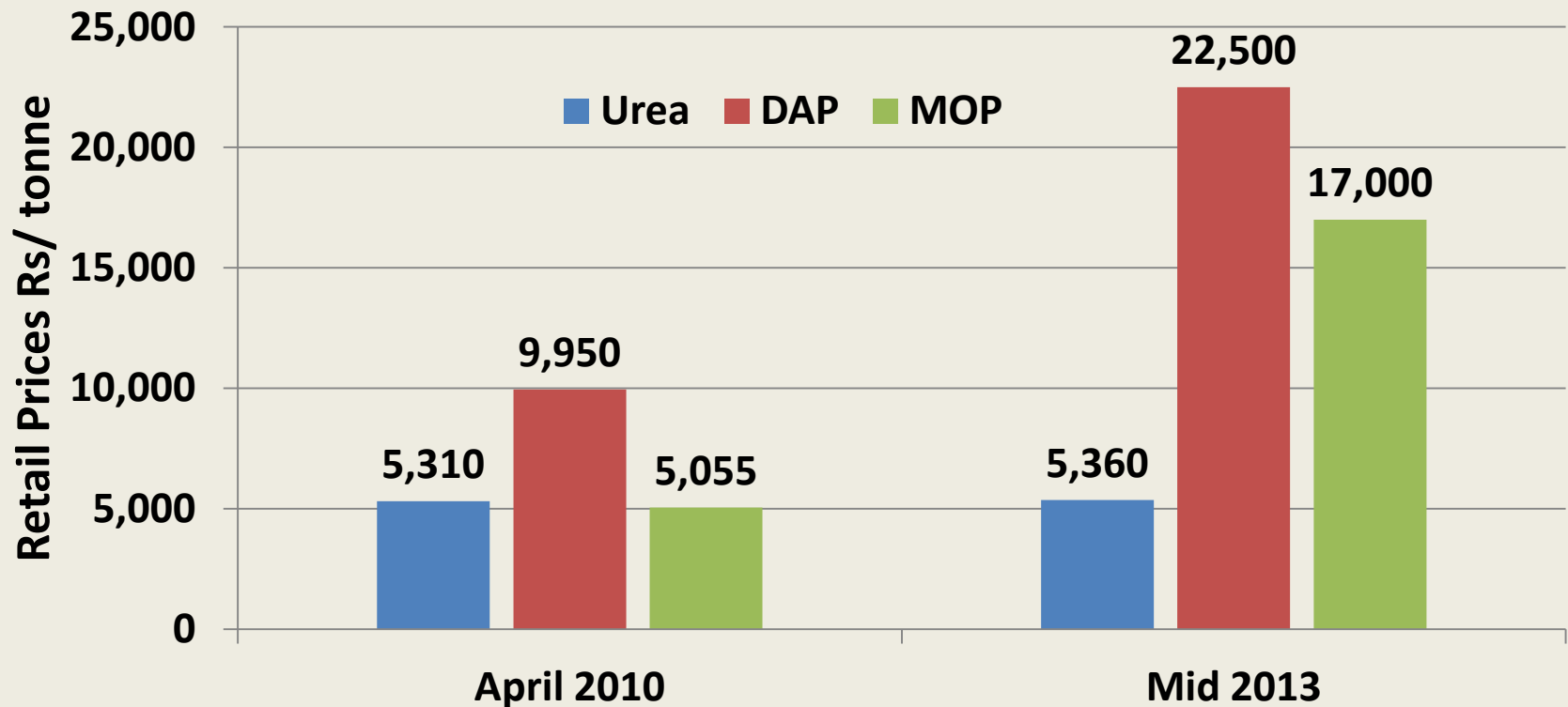
Imports of P&K fertilisers have reduced significantly in recent years, but Urea imports increased. SSP nil

Sales Apr 2009- Mar 2013



**Sales of all P & K fertilisers reduced in recent years,
but Urea sales increased**

In recent years, prices of P & K Fertilisers increased, whereas Urea prices hardly changed



High relative prices of DAP / MOP reduced demand. NPK ratio moved from 4.3 : 2 : 1 in 2009-10 to 7.9 : 3.1 : 1 in 2012-13.

Major Fertilisers

DEMAND FORECASTS

Demand Forecasts

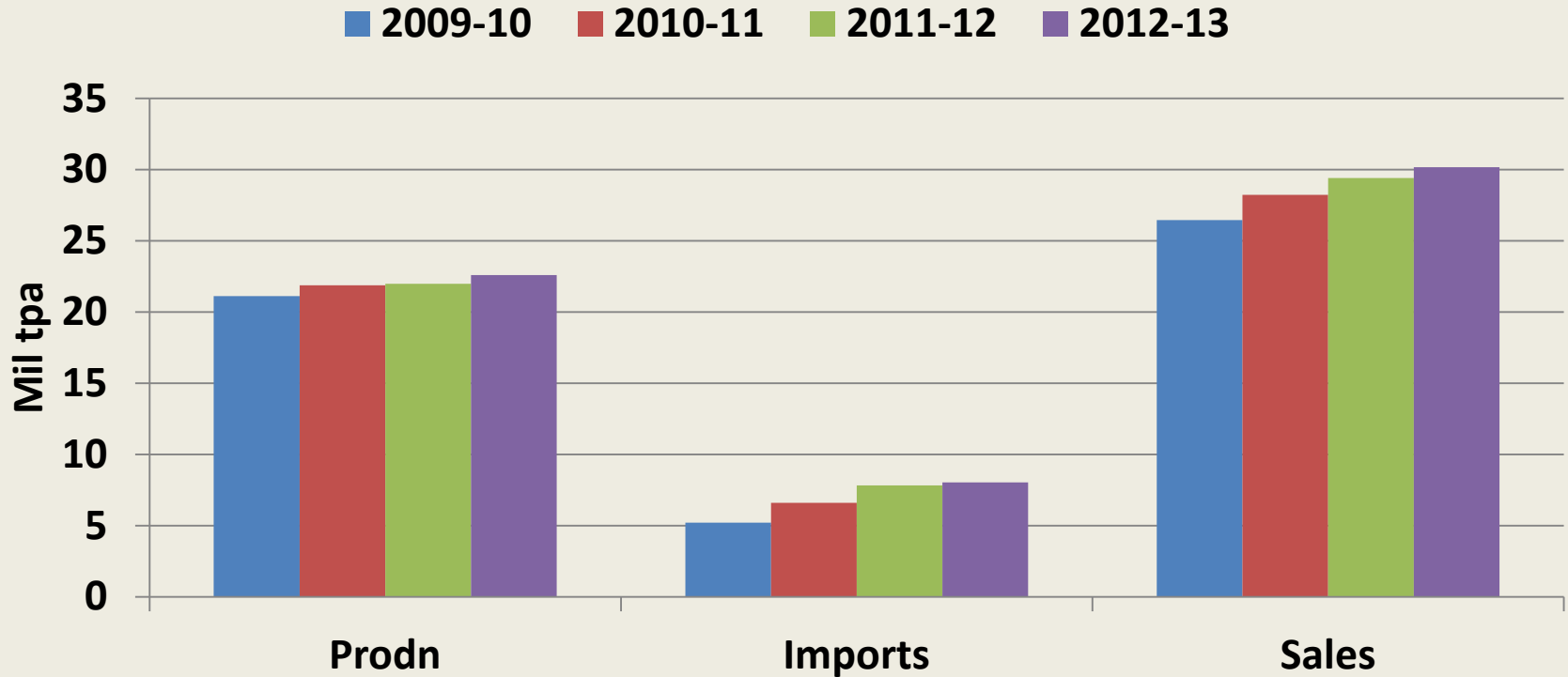
- Taken from report of the Planning Commission's Working Group for the Fertiliser industry for Twelfth Plan period April 2012 to March 2017
- Applied Population Nutrition method to estimate fertilisers required to produce foodgrains (& other crops) to meet future nutrition needs of country.
- It extended the forecast horizon upto March 2025 to facilitate investment planning.

The only fertilizer for which most of the requirement met through indigenous resources. Government keen to maximise domestic production

UREA

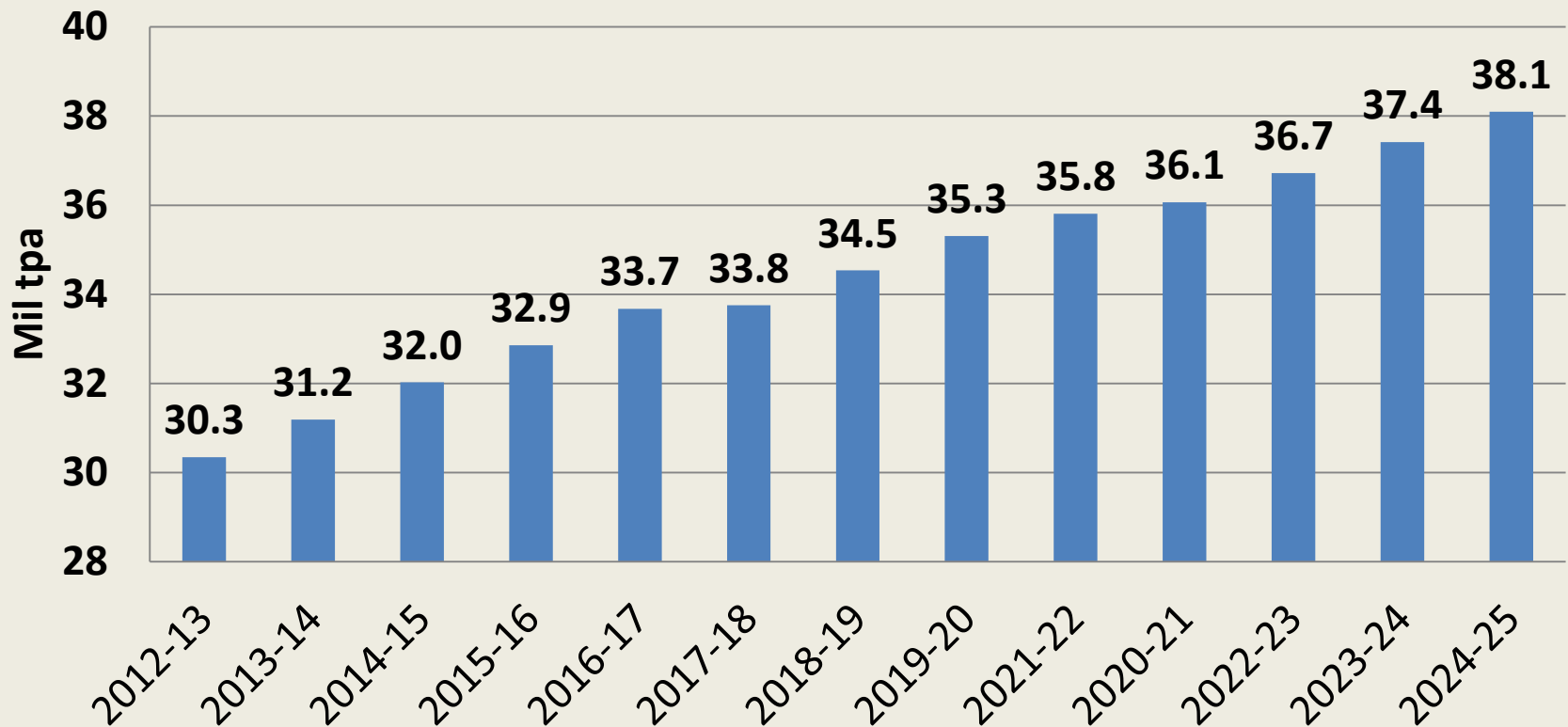
**STATUS, FUTURE DEMAND,
CAPACITY ADDITIONS PROPOSED IN INDIA AND OVERSEAS**

Urea: April 2009 – Mar 2013



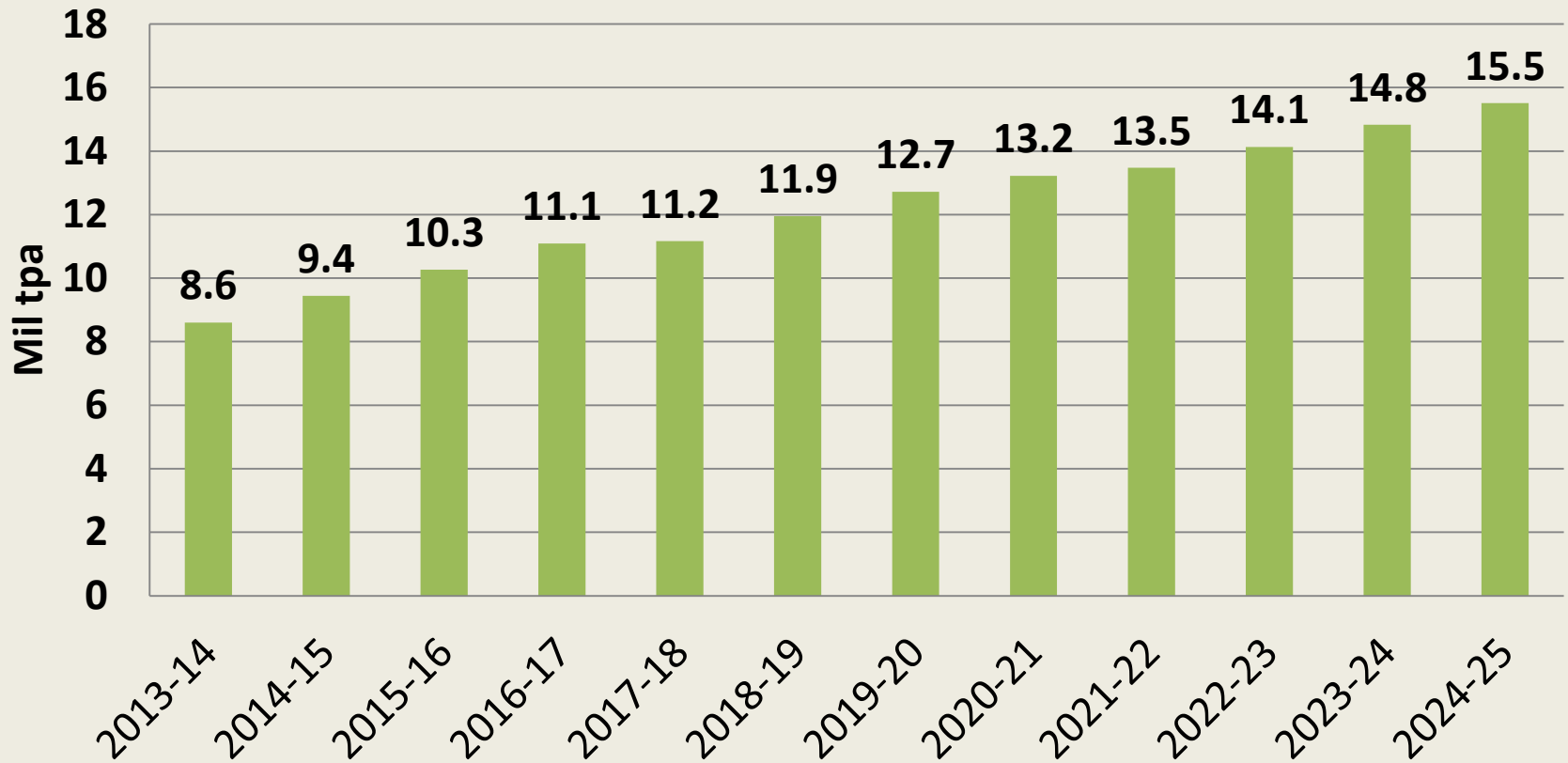
Present imports support ~ 6.4 plants, of 1.25 mil tpa capacity

Urea Demand Forecast 2012-25



***Increase in demand requires ~ 6.2 new plants.
Forecast matches actual sales in first 2 years***

Urea Shortfall = Demand - Domestic Production in 2012-13



Omifco JV provides 1.6 mil tpa. Balance shortfall is 13.9 mil tpa = ~ 11 plants of 1.25 mil tpa each.

Urea: New Investment Policy 2012

- Designed to encourage investment in new gas based units, while balancing interests of the producer, the consumer, and the Government
- Attracted ~ 20 applications
- However, Government unable to assure full domestic gas supply to new units, who may need to supplement with LNG – which will increase cost of manufacture significantly.
- Now, only 4 new gas based units reported to be under consideration, all being expansions at existing plants having pipeline connectivity to the national gas grid

Urea Capacity Addition – 5 mil tpa

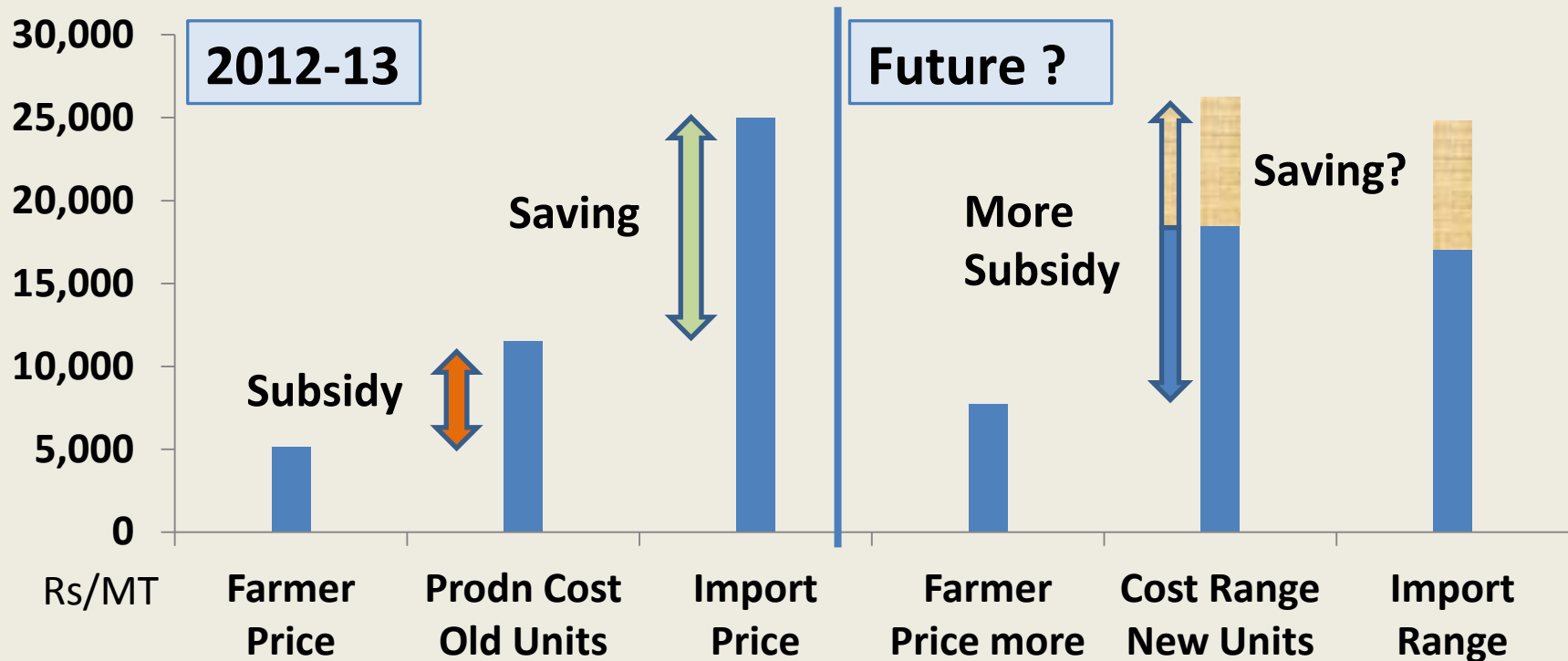
4 possible expansions of existing units

	Company	Location
1	Chambal Fertilisers & Chemicals	Rajasthan
2	Indo Gulf Fertilisers	UP
3	Nagarjuna Fertilisers & Chemicals	AP
4	Rashtriya Chemicals & Fertilisers	Maharashtra
	<i>Possible capacity addition - may change / not final</i>	<i>5 mil tpa</i>

Urea Capacity Additions Proposed – stranded gas – *4 mil tpa*

	Company	Project
5	Matix Fertilizers & Chemicals Ltd, West Bengal	Phase 1: 2,200 tpd Ammonia / 3800 tpd Urea, based on CBM gas. Start up 2016. Phase 2: Proposed 2530 tpd Ammonia / 4430 tpd urea.
6	Oil and Natural Gas Corp Ltd, Tripura	2.4 mmscmd Gas from ONGC's own fields. Urea 1.2 mil tpa/ Ammonia. Partners Chambal Fertilisers and local state Govt. Start up 2017. Can get Viability Gap Funding

Major Challenge for New Units – Hike in Gas Price



Recent Govt decision to double domestic gas price will raise urea cost from new plants: subsidy jumps. Import prices softening due to global over capacity: saving to the economy by domestic production reduces – will vary as per actual gas price and import price.

Uncertainties about gas have fuelled interest in coal and overseas locations

ALTERNATIVES

Coal based proposals – New units

2.65 mil tpa

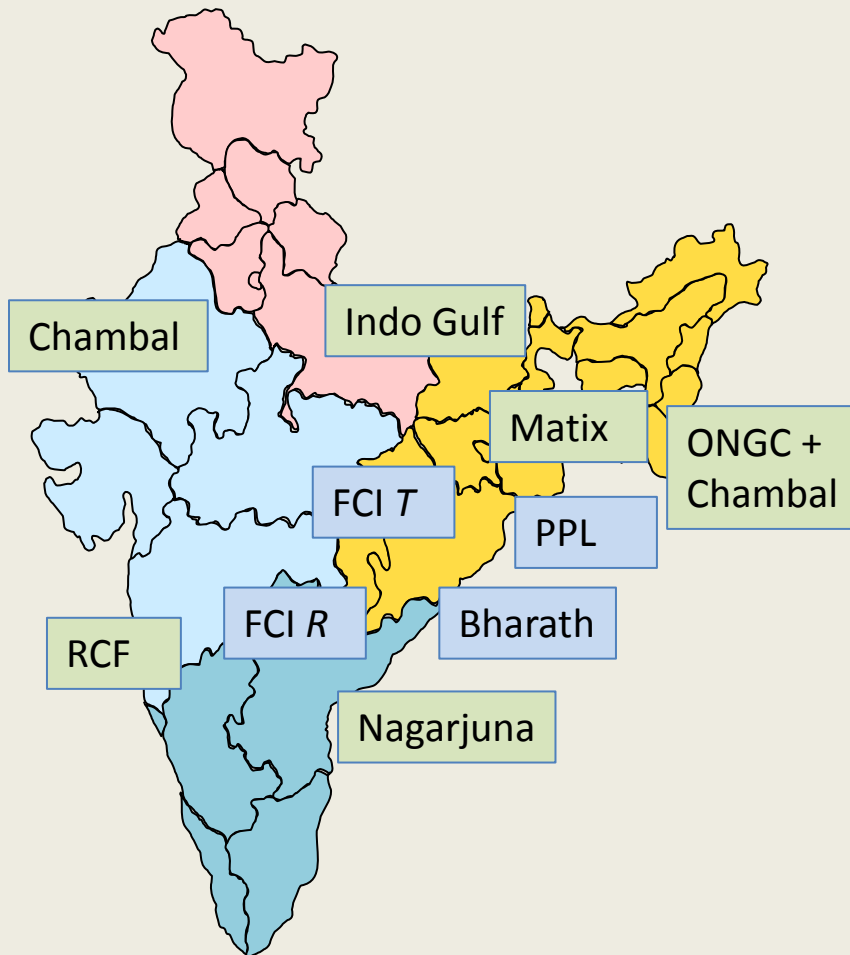
	Company	Project
7	Paradeep Phosphates, Odisha	Ammonia 2.2 mil tpa (3 units), Urea 1.3 mil tpa, DAP 0.4 mil tpa, AN 0.35 mil tpa. Cost \$ 1.5 bil // 2017
8	Bharath Coal, Odisha	Ammonia 0.27 mil tpa + Urea 0.45 mil tpa. Pre- feasibility stage

Coal based proposals – Revival cases

2.4 mil tpa

	Company	Project
9	Fertiliser Corp of India (FCI), Talcher, Odisha	Ammonia 0.75 mil tpa, Urea 1.2 mil tpa, AN 0.35 mil tpa. Partners: RCF, Gail & Coal India (supply Coal, & take AN for mining) Cost USD 1.3 bil // 2017.
10	FCI, AP Ramagundam	Urea 1.15 mil tpa, cost \$ 800 mil // 2017. Partners: National Fertilisers, Engineers India

Domestic Urea Capacity Additions Proposed



Capacity in mil tpa

- Gas Based:
 - Pipeline grid : 5.0
 - stranded: 4.0
- Coal Based: 4.1
- **Total: 13.1**

Overseas Projects Proposed in Ammonia / Urea – 3 mil tpa to India

	Country	Remarks	Mil tpa
11	Canada	IFFCO in Quebec. Start 2017; Sales 0.5 Canada, 0.25 DEF, rest export, including India. second plant later	1.3 1.3
12	Ghana	RCF consortium – under evaluation	1.3
13	Gabon	Tata Chemicals with Olam & Govt of Gabon. Upto 25% for India. Start up end 2016	1.3
14	Nigeria	Nagarjuna Fertilisers – 2 units	1.3 1.3

Out of total 7.8 mil tpa proposed, assume 40% sent to India

Urea Summary

Shortfall by 2024-25: 15.5 mil tpa

Omifco existing JV 1.6	Domestic addition 13.1	Overseas addition 3.0	Total : 17.7	Balance Shortfall: 2.2 Excess
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Urea Adjusted Summary

Shortfall by 2024-25: 15.5 mil tpa

Omifco existing JV 1.6	Domestic addition 9.8	Overseas addition 1.5	Total : 11.3	Balance shortfall: 2.6
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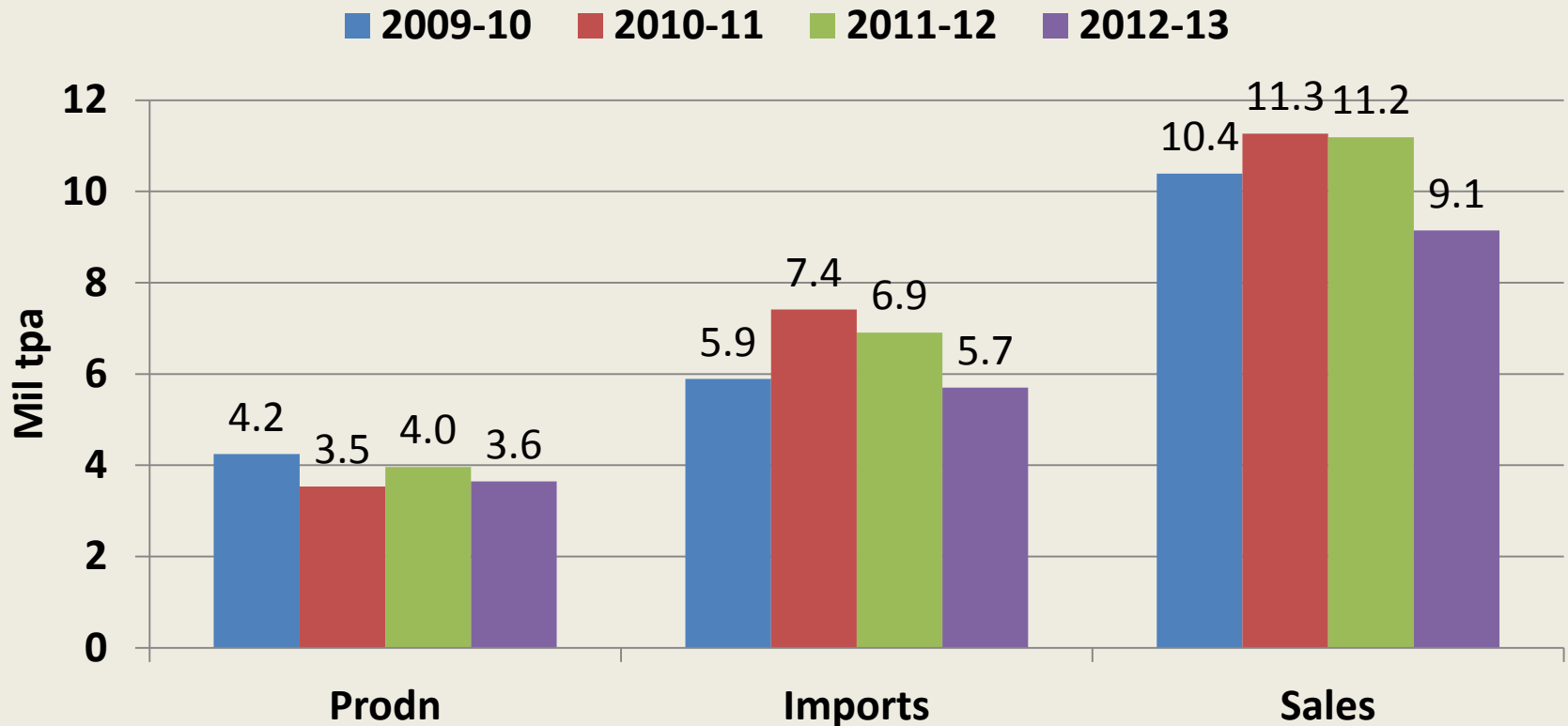
India has small resources in P. About 90% requirements are met through direct import of finished fertilizers or the raw materials or intermediates for indigenous conversion into phosphatic fertilizers.

DAP & NPK COMPLEXES

FUTURE DEMAND,

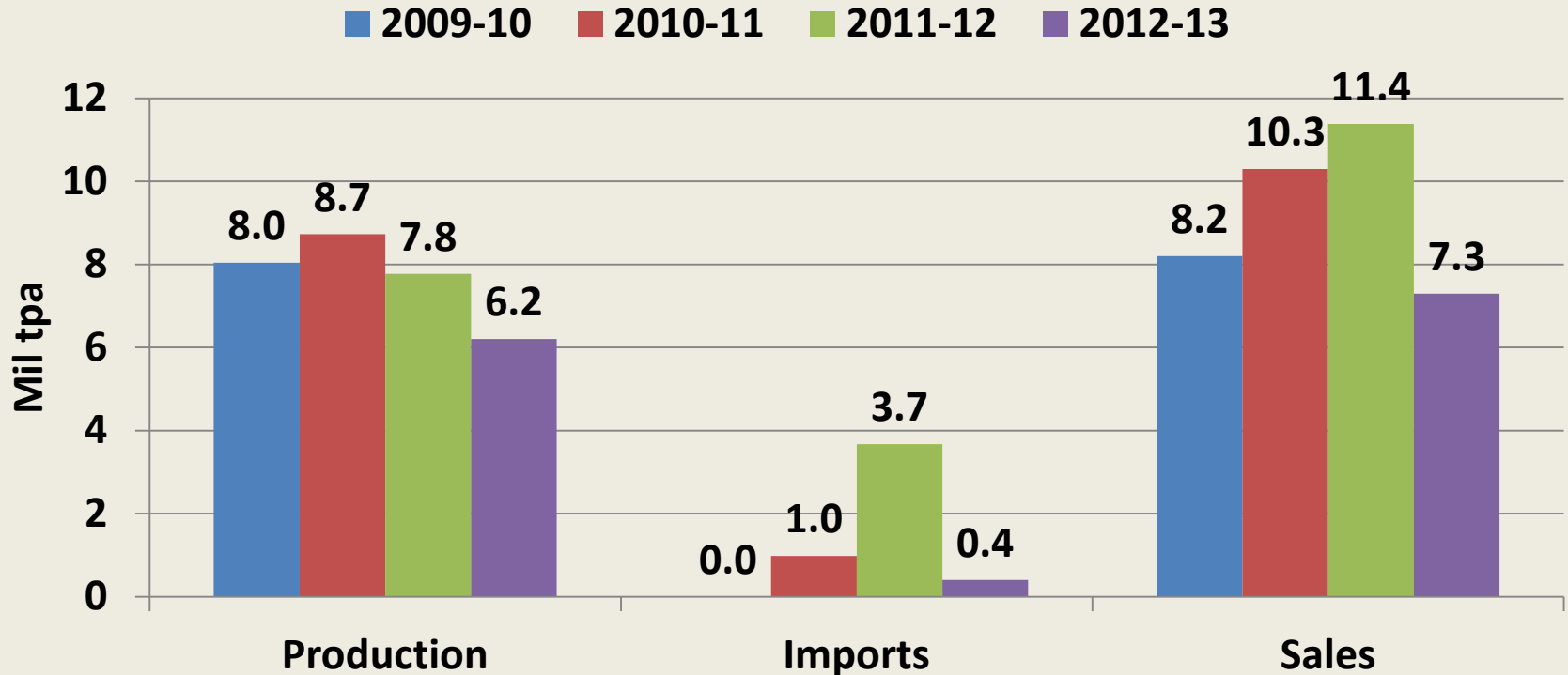
CAPACITY ADDITIONS PROPOSED IN INDIA AND OVERSEAS

DAP: Apr 2009- Mar 2013



Large dependence on Imports

NPK April 2009- March 2013

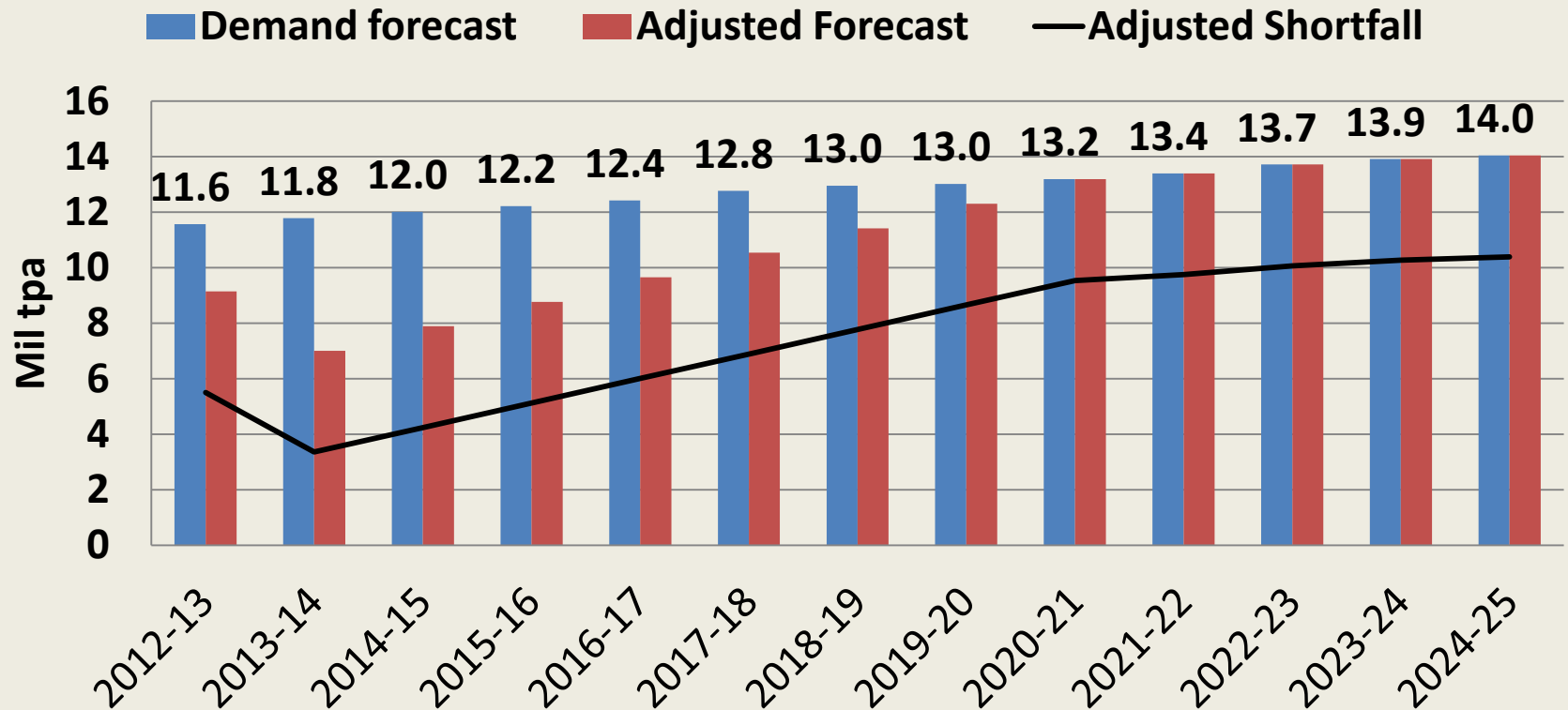


Imports commenced after NBS introduced, then reduced.

Adjusting the P & K demand forecasts

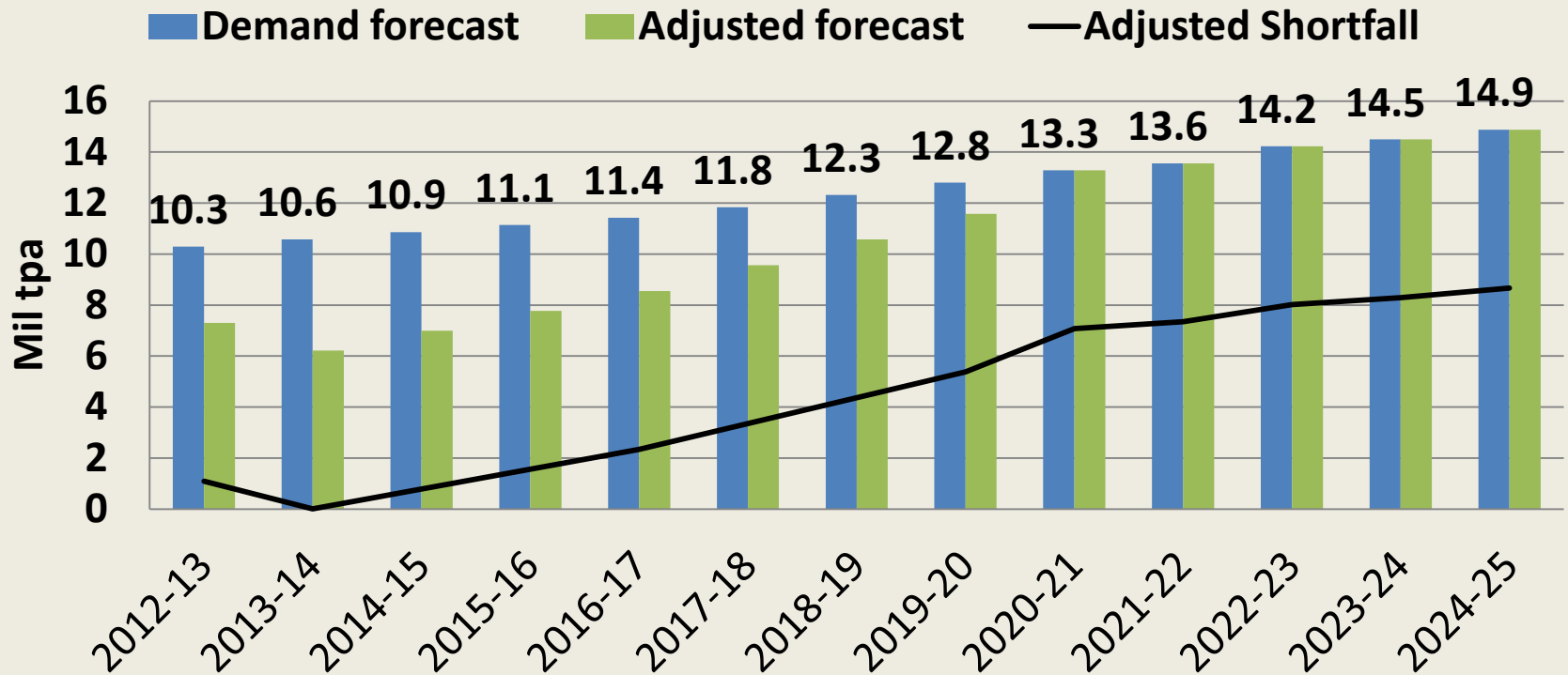
- Planning Commission's demand forecast used NPK ratio of $\sim 4.7 : 2.3 : 1$, from April 2012 onwards.
- Demand estimated for first 2 years is much higher than actual P/K sales – - - forecast needs adjustment
- I assume that Urea prices will be increased, since :
 - Government cannot sustain rising subsidy burden,
 - agricultural output will suffer due to low P & K application
 - However, price increase will occur in small steps
 - that it will take 7 years for P&K demand to rise up to original forecast level i.e. by 2020-21.
- Shortfall is calculated as the excess of Adjusted Demand over production in 2012-13

DAP Forecast Demand & Shortfall



By 2024-25, Adjusted demand will exceed present Production by 10.4 mil tpa =Adjusted shortfall

NPK: Forecast Demand & Shortfall



By 2024-25, Adjusted demand will exceed present Production by 8.7 mil tpa =Adjusted shortfall

New Capacities DAP/ NPK proposed

5.2 mil tpa

	Company	Capacity ktpa	Status
1	Coromandel / Kakinada, AP	500	Started 2013
2	Deepak Fertilisers / Maharashtra	300	2015
3	GSFC / Sikka, Gujarat	500	mid 2016
4	Zuari Fertilisers / Dahej, Gujarat	1100	Proposed
5	Tata Chemicals /Haldia, W Bengal	300	Proposed
6	Paradeep Phosphates / Orissa	400	2017
7	Jaiprakash Engineering & Steel / Mangalore, Karnataka	900	Proposed
8	Krishak Bharati Cooperative / Krishnapatnam, AP	1200	Proposed

Overseas Projects in DAP

- *2 mil tpa*

- Morocco: the IMACID JV between OCP, Tata Chemicals & Zuari is evaluating DAP 1 mil tpa project
- UAE: Zuari Agro Chemicals – integrated 1 mil tpa DAP plant, investment \$800 million, at Ras Al Khaimah Maritime City
- Total 2 mil tpa, if all output comes to India

Overseas Projects in Phos Acid

- Tunisia: Coromandel and GSFC partnered GCT to form Tunisia-India Fertilizer Company - 360 ktpa Phos Acid plant started Jul 2013 - CIL & GSFC will buy all output
- Jordan: IFFCO and JPMC formed Jordan India Fertilizer Company - 480 ktpa Phos Acid plant commissioned mid 2013 - IFFCO will buy all output
- Jordan: GNFC evaluating Phos Acid plant with JPMC. 360 ktpa ?
- Morocco: IMACID evaluating addl 300 ktpa plant
- Total : 1.5 mil tpa

Overseas Projects – Rock Phosphate

- Australia: IFFCO - stake in Legend Int'l for 3 Mil tpa; *arbitration proceedings*
- Peru : IFFCO - 20% stake in Growmax Agri Corp's Phosphate prospects (Sechura) - Exploration stage
- Peru: IFFCO - 5 year supply agreement - Vale SA /Bayovar
- Peru: Zuari / Mitsubishi 30:70 JV - 30% equity in Fosfatos del Pacifico. Will purchase all rock phosphate production, net of local demand, for min 20 years. Production 2015.

DAP / NPK Summary

Proposed / Implementation 75% & 50%

Shortfall by 2024-25: 19.1 mil tpa

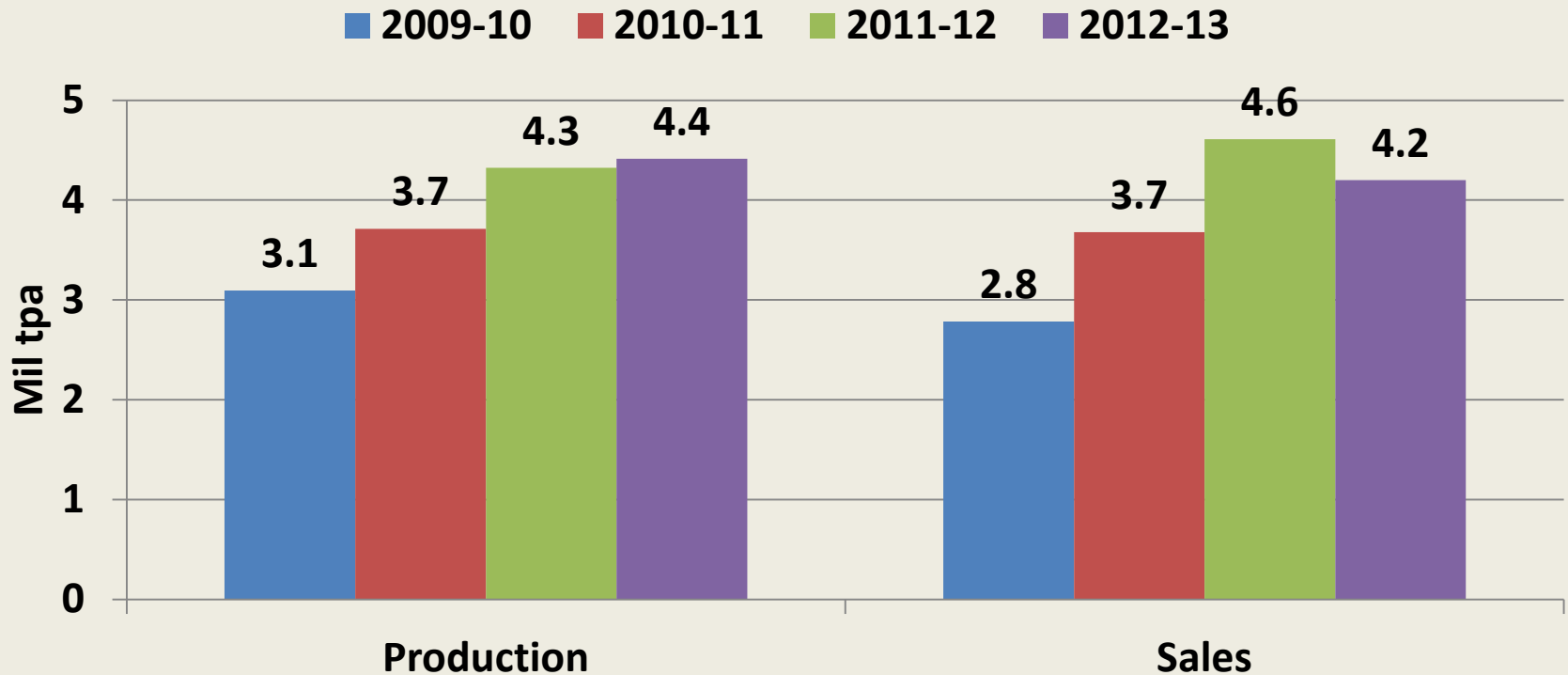
Domestic addition:	Overseas addition for India:	Total addition:	Shortfall remaining:
5.2	2	7.2	11.9
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3.9	1	4.9	14.2

For farmer, cheapest fertiliser after Urea. Quite popular, as it provides P and S (which is short in most soils in India)

SSP

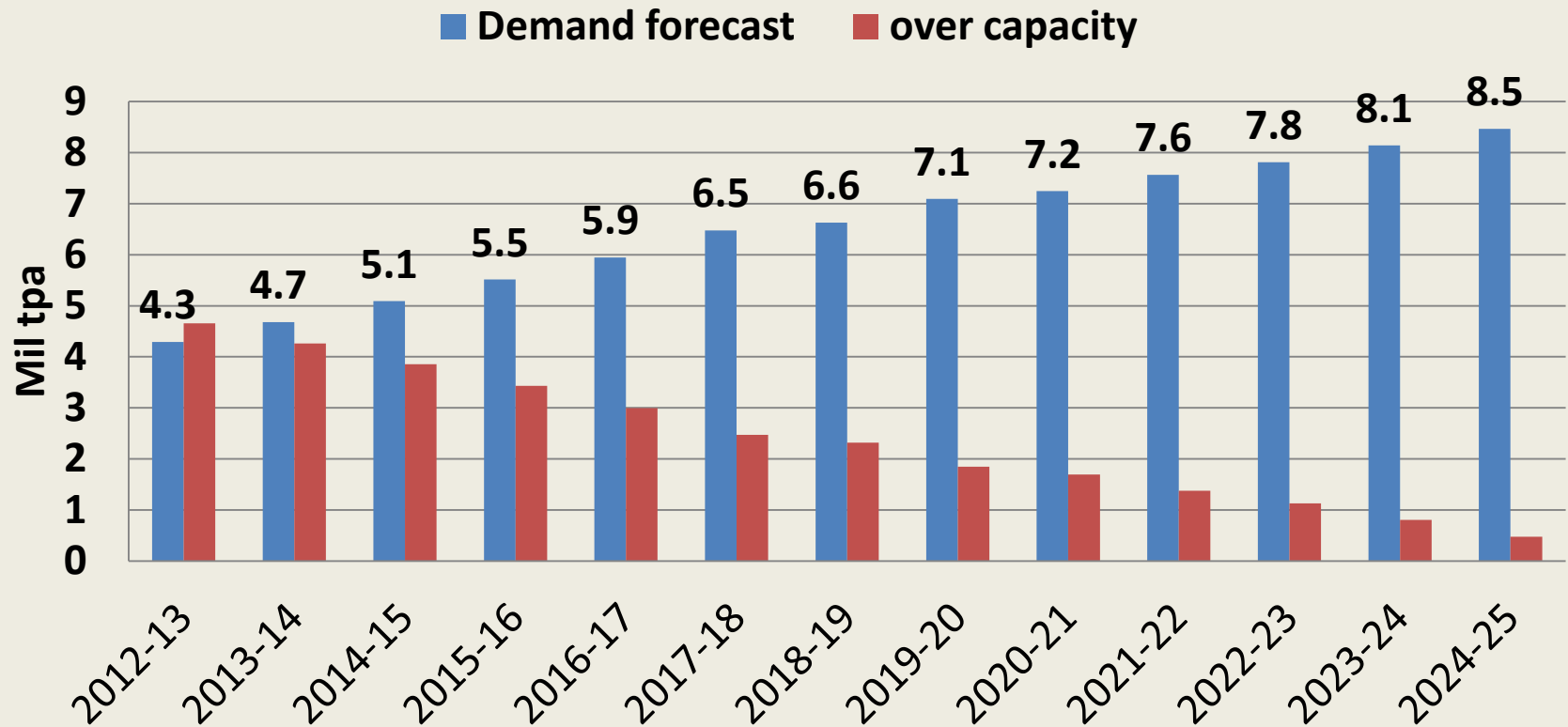
DEMAND FORECAST & CAPACITY ADDITIONS PROPOSED IN INDIA

SSP Status: April 2009- March 2013



**Imports nil. Half the Capacity under-utilised.
Changes in subsidy policy encouraged use**

SSP: Demand Forecast & Overcapacity



As recent sales are near forecasts, no adjustment made. Present capacity 8.9 adequate.

New Capacities SSP

- It is a cheap substitute for DAP
- Despite over-capacity, there is strong interest in adding SSP capacity - at least 3 mil tpa, from 16 units.
- Many large producers entering SSP. Only competitive units will survive / operate
- Key issue is access to assured rock phosphate.
- *Conclusion: Entire future demand will be met by domestic capacity*

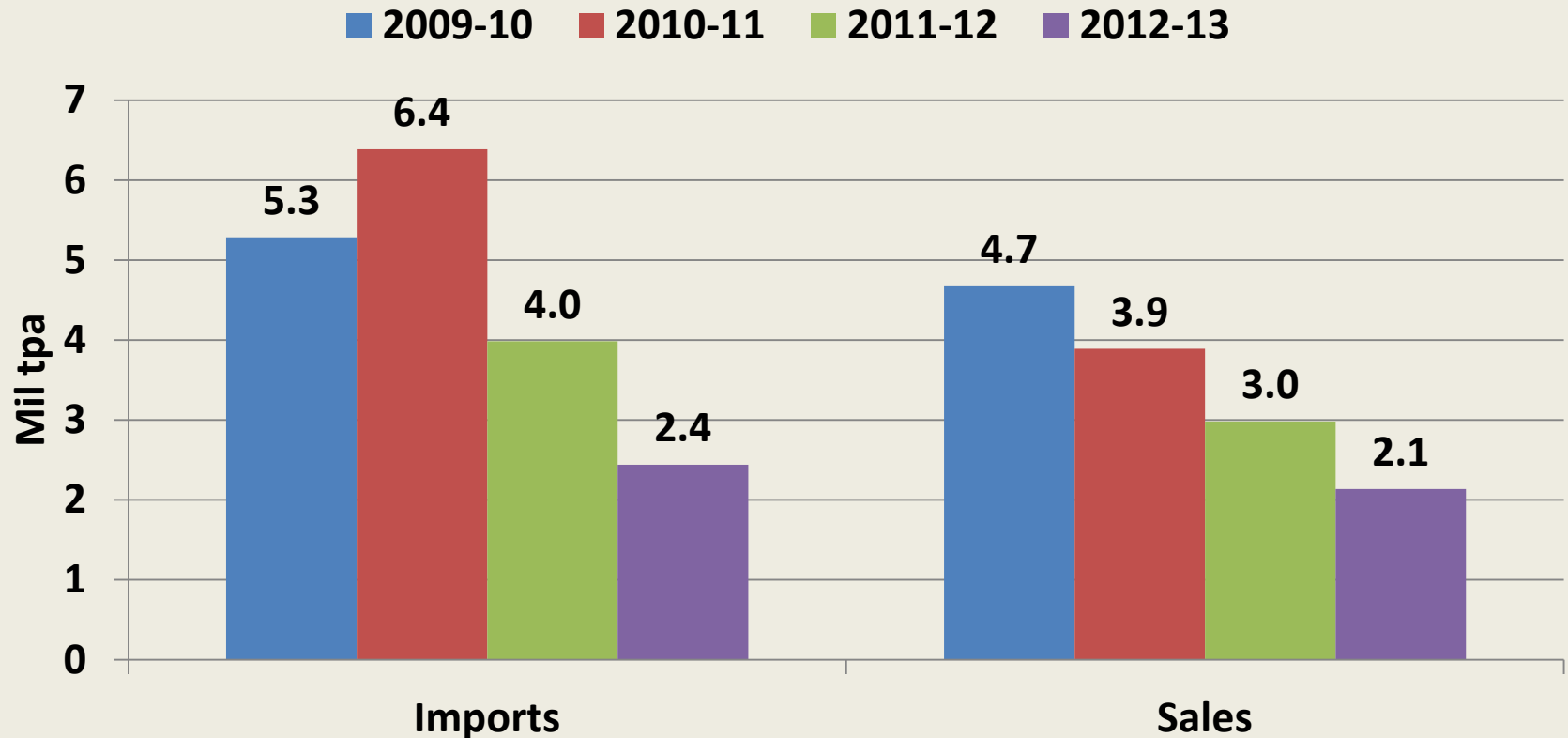
India imports all its requirements.

POTASSIC – MOP / SOP

FUTURE DEMAND,

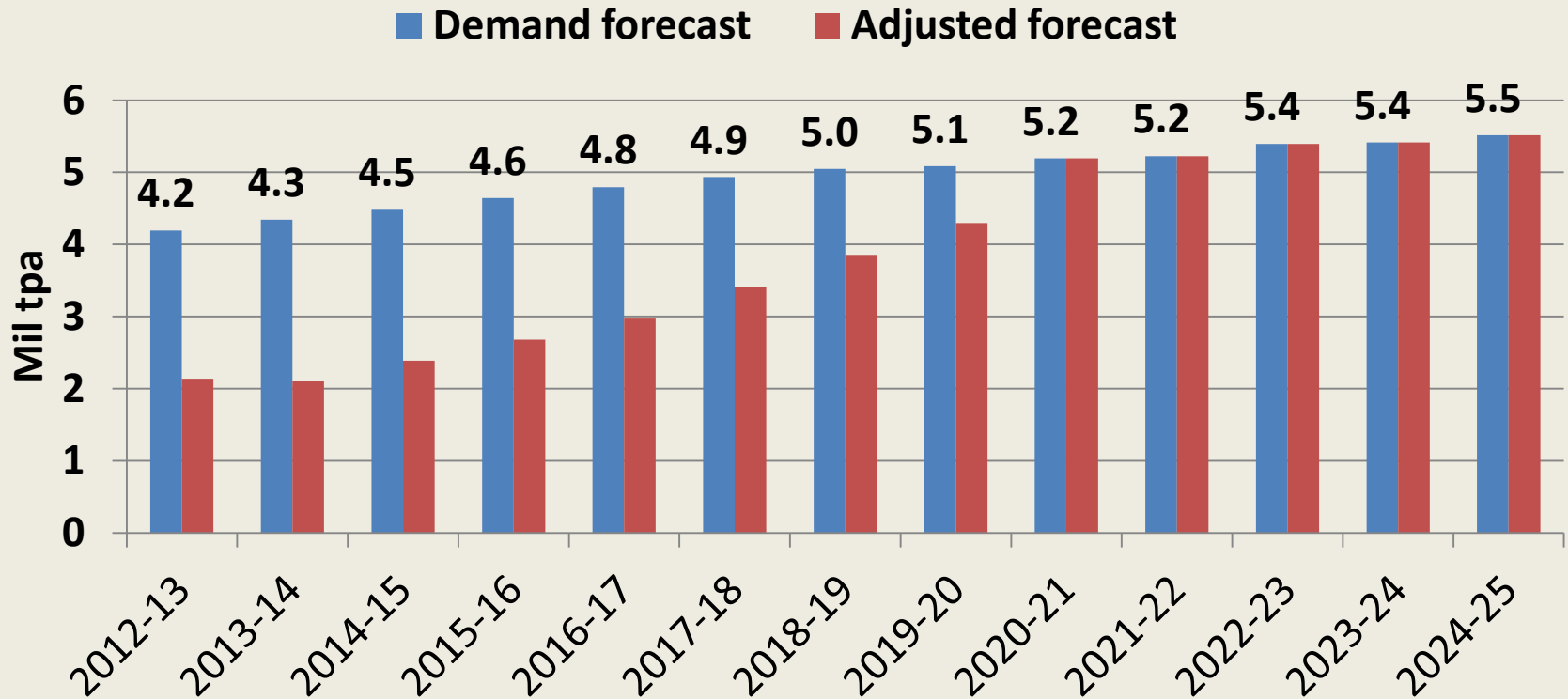
CAPACITY ADDITIONS PROPOSED IN INDIA AND OVERSEAS

MOP April 2012- March 2013



Adverse pricing has halved sales

MoP: Demand Forecast



Just like DAP / NPK, assume that sales catch up with demand forecast by 2020-21 - all MOP to be imported

New Capacities in India - SOP

As India does not have conventional K resources, some companies are taking novel routes:

- Archean Chemicals Pvt Ltd: 100 ktpa SOP plant in Gujarat, through conversion of naturally available marine mineral deposits. Start up late 2013
- Tata Chemicals: investing in research project to extract potassium sulphate (SOP) from sea water.

SoP demand only ~ 50,000 tpa. Though good product, not covered in subsidy system presently

These projects may not impact imports of MOP

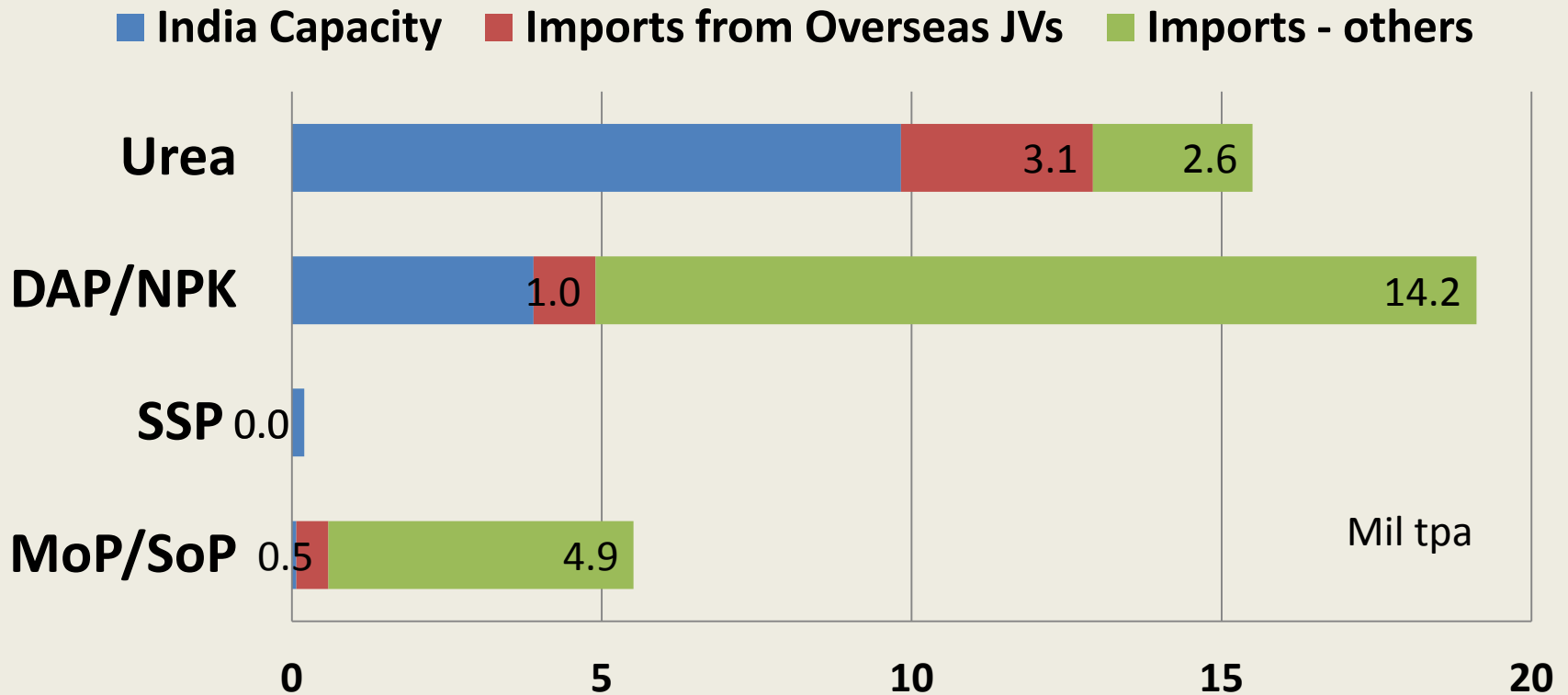
Overseas Projects in Potash – *1 mil tpa*

- USA: Tata Chemicals - EPM Mining Ventures. Project at Mining stage. SOP 300 ktpa by 2020
- Peru: IFFCO - 20% stake in Growmax Agri Corp, Canada, for Mining Project at Bayovar, Peru. Capacity 250 ktpa MoP, will offtake 50% output. Start-up 2015.
- Canada: GSFC - 20% stake in Karnalyte Resources Inc, for Wynyard Project – supply 350 ktpa Potash in Phase I, and further 250 ktpa in Phase II. Start-up 2015
- Total offtake max 1025 ktpa

Consolidating all the data ...

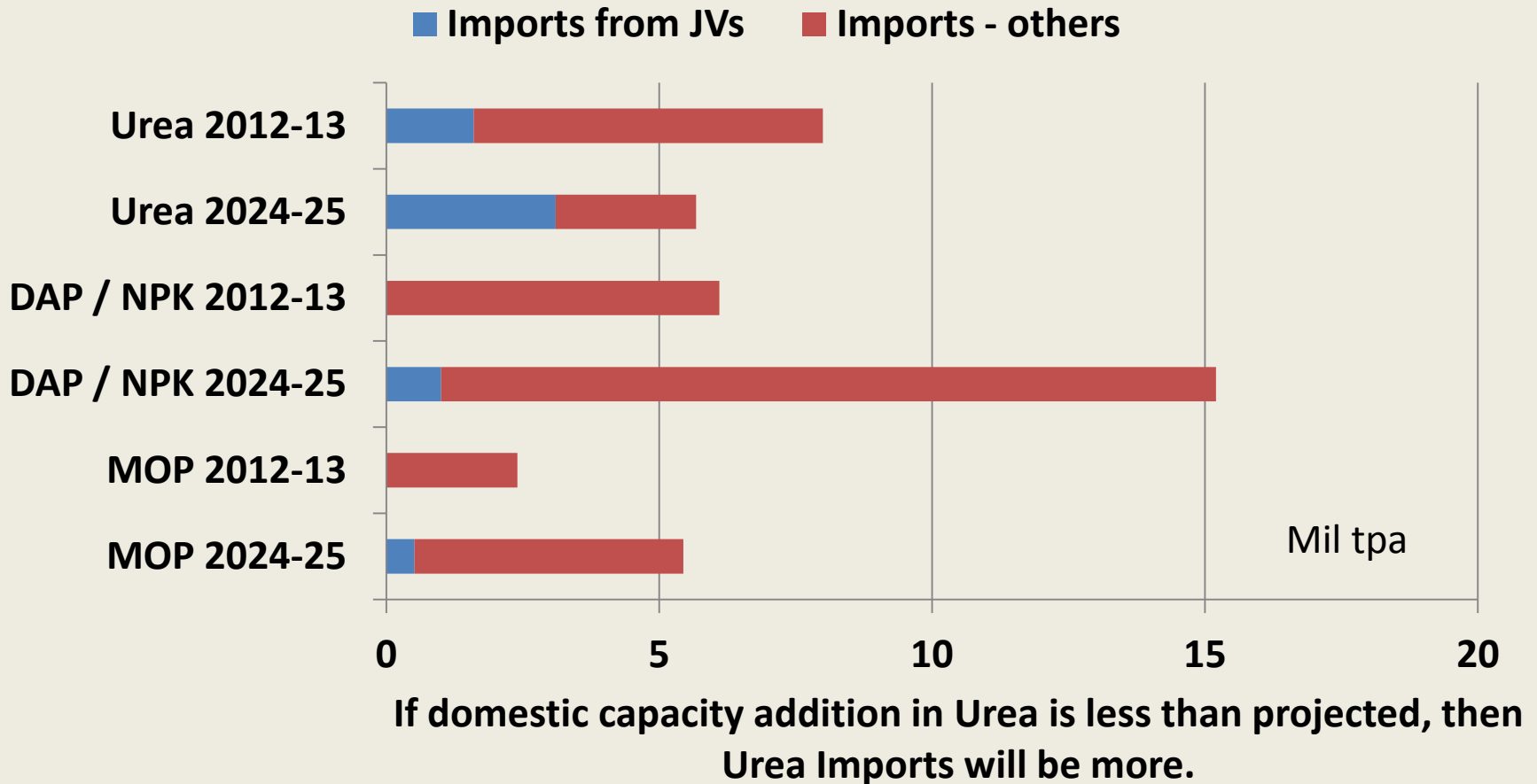
SUMMARY

How will the Shortfall in 2024-25 be covered?



Domestic Urea capacity addition takes care of most of the shortfall.
 JVs for P&K have small contribution. SSP will have excess capacity.

How different could 2024-25 be from 2012-13 ?



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THANK YOU !