



ANALYTICAL VIEW OF RICE PRODUCTION : HOW MUCH DOES IT COSTS?

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Back ground: -

India is one of the world's largest producers of rice and brown rice, accounting for 20% of all world rice production.

Rice is mainly grown in rain fed areas that receive heavy annual rainfall. That is why it is fundamentally a kharif crop in India. Rice is also grown through irrigation in those areas that receives comparatively less rainfall.



Gujarat Region Profile:- Produces 1.56% of India's total rice production

Area cultivated in hectars:- 701000 – Year 2012-13, Production or Rice :-1541000 tons,[Source-http://sap.inpi.net/article/gujarat](http://sap.inpi.net/article/gujarat)

Water requirement of rice crop at different growth stage:-

Sr.No	Stage of growth	Average water requirement in mm	% of water requirement
1	Nursery	50-60	5
2	Main field preparation	200-250	20
3	Planting to Panicle initiation (PI)	400-550	40
4	PI to flowering	400-450	30
5	Flowering to Maturity	100-150	5
	Total	1200-1460	100

[Source- http://agropedia.iitk.ac.in/content/irrigation-water-management-paddy](http://agropedia.iitk.ac.in/content/irrigation-water-management-paddy)

Water consumed during the year- Gujarat

701000 hectars x 10000= 7010000000 sqm

Water requirement -1.46 m

Total cubic meters of water= $701000000 \times 1.46 = 1023460000$ Cu M

So, in Million liters- 10234600

In MLD=28040 which is equal to 10 times daily water supplied through State Wide Drinking Water Supply Grid

Per capita utilization for Rice production:

Total cubic meters of water required= $701000000 \times 1.46 = 1023460000$ Cu M

So it is 102346 lakh cubic meter

Considering population of Gujarat: About 650 lakhs, Per capita utilization:-157.45 cubic meter/ capita (Which is 18 % of the per capita available water in the State)

Per capita availability of fresh water: *The State has 185 river basins and the available quota of water in the State is 55608 million cubic meters, out of which, 38100 million cubic meters is surface water, which is only 2% of the entire quota of surface water of the country. Moreover, the available quota of surface water is also not distributed properly. The underground water resources of State are 17508 million cubic meters. (55608/65 million population=855cum/capita)*

Water consumption per Kg

$1023460000 / (1541000 \times 1000) = 6.641$ cubic meter

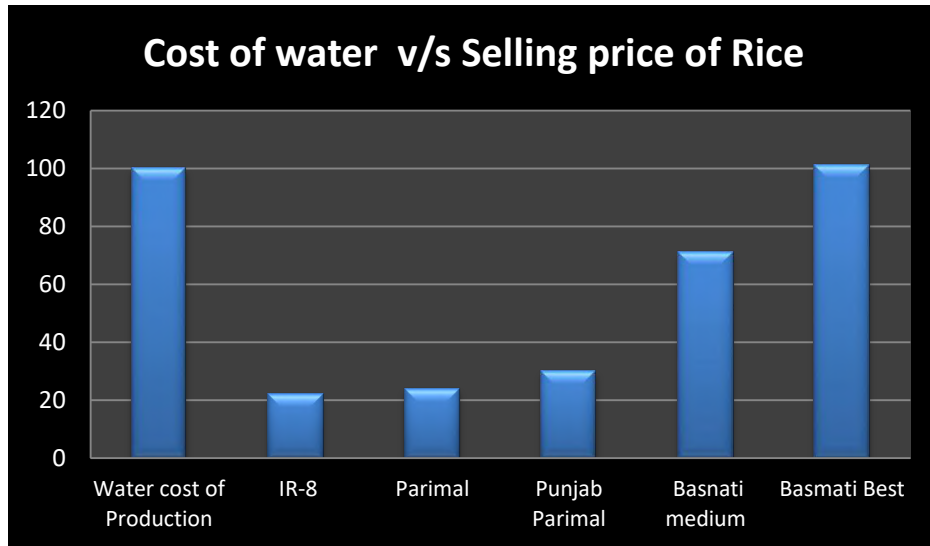
i.e 6641 liters per Kg- which is equal to 6 KL water tanker

Cost of Narmada Water: *As per the reference from balance sheet the cost of water considering internal rate of return, operation cost is worked out about Rs 14/ KL (Commercial rate)*

Cost of water used for 1 kg or rice= $6.6 \times 14 = 92.4$ / Kg, Say about Rs 100/ Kg

Rajkot food grain Price of 22nd March 2018- Rice

- IR-8 :- Rs 22 to 22.5/ kg
- Parimal:- Rs 24 to 24.5/ kg
- Punjab Parimal: Rs 30 to 30.5/ kg
- Basmati medium: Rs 71 to 72/ Kg
- Basmati Best:- Rs 101 to 102/ Kg



Food habits of Gujarati people:

Rice is the main part of Lunch or Dinner of Gujarati People, but it is restricted to few spoons, **the state is water scarce area**, hence it is believed that people had formed the habit of limited utilization of rice due to same.

Conclusion: -For virtual water management it is suggested that it shall not be sown in the water scare areas, water saved due to sowing of other products having less water demand may be used for future demand of domestic and drinking water in the State