

# Garibrath service of Indian railways : A Water Conservation Practice

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**Abstract:** Water conservation is a big challenge before any developing nation of Asia region. Fresh water lakes are sinking day-by-day due to global warming. This paper presents a detailed and quantified analysis of how much water could be conserved annually in one of the train services (garibrath) of Indian railways.

Keywords: water, conservation, garibrath

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**Introduction:** In this 21<sup>st</sup> century, the globe is posed with a challenge of ever increasing demand for natural resources. Water is one of such resources becoming scarce day-by-day. Every global citizen should pledge to conserve water as much as possible. One such opportunity to conserve water is garibrath train service by Indian railways. By simple changes to passenger life style, huge amounts of water could be conserved.

**Literature survey:** John et al showed that subject to considerable inertia, sustainability could be sidelined by short term challenges and deep seated vested interests. It takes time, effort and deep analysis for radical transformation of current mindsets[1]. Geizendorffer et al identified in his research, a bias in the information demand and in the information available from national level indicators towards supply chain aspects of eco system flows[2]. Aldama et al evaluates the long run sustainability issues of US public debt and fiscal consolidation test the sufficient conditions of No Ponzi game and debt stabilizing condition [3]. Leyre et al in his paper concludes that inclusive governance is the key success factor in sustainable fisheries management, for balanced outcome on all three dimensions- ecological, economic and social[4]. Angeliki et al raised the need of country-specific data in sustainability assessment of construction industry, considering the impact of globalization and government intervention in the greening of the building sector[5].

**Policy Definition:** After every journey, the bedsheets, pillow covers and hand towels used by garibrath passengers are washed. But when a passenger brings a bedsheet along with his luggage, to be used in journey, the passenger seldom washes the bedsheet after every single journey. This not only reduces passenger expenditure in a journey by Rs25 but also reduces consumption of water to wash the bedsheets, by a large scale. By simple changes in lifestyle, every passenger in garibrath train could help Indian railways and the Indian society in general to reduce water consumption and conserve water.

**Description:** In every journey of garibrath train, passengers have a habit of paying Rs 25 to use bedsheets, blankets etc during the journey[6]. Every passenger feels happy about his affordability and the services given to him in the journey. But looking at the bigger picture, passenger should

think of the resources utilized in offering such a service. Every journey in garibrath leads to such a huge volume of bedsheets to be washed in water. This water needs an optimum temperature for easy cleaning. So, water needs to be heated. Also a lot of detergent is used. Pillow covers and handtowels are washed in the same water. When this is seen at the level of the service called GARIBRATH, it may look as if it only costs Rs25 per passenger. But the amount of water consumption is huge. Also the cost involved in recycling this water. Water is a natural resource which is becoming scarce day-by-day. We should conserve water. With a little change in lifestyle, every passenger could help conserve water. Let the passenger take bedsheet along with him in a journey. Definitely, the passenger seldom washes the bedsheet after every single journey. Moreover, Indians seldom travel so frequent.

**Methodology:** Take a bucket used in everyday household and dump a bedsheet of a single cot (140\*200cm) into the bucket. Mark the height. It comes out to be 4cm on an average. To wash a bed sheet manually, on an average two liters of water is needed.

Indicator	Measurement
Input indicators	
no of garibrath trains per week	60
no of passenger compartments in a train	25
no of garibrath passengers per week	$60 * 25 * 72 = 1,08,000$
no of bedsheets consumed	1,00,000
No of pillow covers consumed	1,00,000
No of blankets consumed	1,00,000
No of hand towels consumed	1,00,000
Output indicators	
Amount of water to wash consumed a single bedsheet	2 liters on an average
Amount of water to wash consumed pillow covers	Washed in reused water
Amount of water to wash consumed handtowels	Washed in reused water

Table 1: indicators of garibrath train service

Indicator	Weightage
Passengers availing bed service	0.8
Annual rate depending on weather	0.4

Table 2: weightage of indicators

Item	Dimension
Total amount of water( in liters) to wash bedsheets	$2 \times 0.8 \times 100000 = 1,60,000$
Amount of water consumed in a week	1,60,000
Amount of water consumed in a month	$1,60,000 \times 4 = 6,40,000$
Annual consumption of water by bedsheets of garibrath (liters)	$6,40,000 \times 0.4 = 2,56,000$
Annual water consumption(gallons)	56,889

Table 3: water consumption

One gallon is equivalent to 4.5 liters. So, the amount of water consumed annually turns out to be 56,889 gallons of water. All this water needs to be recycled which attracts a huge cost. By making simple lifestyle changes, all this cost in recycling the water and 56,889 gallons of water consumption could be reduced annually. Since, India is a country with varied climatic conditions and garibrath trains are year round air conditioned, a passenger needs a bedsheet only in winters.

**Conclusion:** It is the collective responsibility of every citizen of a country like India to conserve natural resources. Just a little change in lifestyle helps conserve natural resource called water (56,889 gallons) in washing the bedsheets of a garibrath train journey. This also helps Indians do passive earning in the name of reduced expenditure. So, Indian railways should inculcate the practice among passengers and help conserve water.

#### References:

- 1) Peter John McManners,'Developing policy integrating sustainability: A case study into aviation', Environmental Science and Policy, 57(2016),86-92.
- 2) Ilse R . Geizendorffer,Emmanuelle Cohen-Shacham, Anna F. Cord,Wolfgang Cramer,Carlos Guerra,Berta Martin Lopez,"Ecosystem Services in global sustainability policies",Environmental Science and Policy,74,(2017),40-48.
- 3) Pierre Aldama, Jerome Creel, "Fiscal policy in the US: Sustainable after all?",Economic

modelling,2018, ISSN 0264-9993.

- 4) Leyre Goti-Aralucea, Mike Fitzpatrick, Ralf Doring, David Reid, John Mumford, "Overarching sustainability objectives overcome incompatible directions in the common fisheries policy", Marine policy, 91, 2018, 49-57.
- 5) Angeliki Kylii, Paris A Fokaides, "Policy trends for sustainability assessment of construction materials: A review", Sustainable cities and society, 35(2017), 280-288.
- 6) [www.indianrail.gov.in](http://www.indianrail.gov.in)

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