

A STUDY ON INCIDENCE OF ENVIRONMENTAL ISSUES IN TAMIL NADU: A DESCRIPTIVE ANALYSIS

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Abstract

Major Environmental issues are woodland and rural corruption of land, asset exhaustion (water, mineral, timberland, sand, rocks and so forth), ecological debasement, general wellbeing, loss of biodiversity, loss of strength environments, and vocation security for poor people. The significant sources of contamination in India incorporate the uncontrolled consuming of fuel wood and biomass like dried waste from domesticated animals as the essential wellspring of energy, absence of coordinated trash and waste evacuation administrations, absence of sewage treatment activities, absence of flood control and rainstorm water seepage framework, redirection of customer squander into waterways, incineration rehearses close to significant streams, government a dated security of profoundly dirtying old public vehicle, and proceeded with activity by Indian legislature of government claimed, high outflow plants worked between 1950 to 1980. Air contamination, helpless administration of waste, developing water shortage, falling groundwater tables, water contamination, safeguarding and nature of timberlands, biodiversity misfortune, and land/soil corruption are a portion of the major ecological issues India faces today. India's populace development adds strain to natural issues and its assets. The current investigation attempts to make an endeavor to account the major ecological issues and its main thrusts and outcomes and further the moderation measures for practical living of the state. It is seen from the investigation that it is realized that 14727 tons of metropolitan strong waste is created each day in Tamil Nadu with near 60% of that coming from the 12 organizations. Over the time of study, the normal yearly SO₂ concentrations expanded in all areas in Chennai, Madurai and Trichy, while the equivalent diminished in Thoothukudi and Coimbatore. But a few areas, the RSPM focuses expanded in all areas in Tamil Nadu over a similar period. The groundwater improvement is accounted for more than 100% in a few areas including Chennai, Salem, Perambalur, Krishnagiri, Dharmapuri, Tiruppur, Dindigal, Coimbatore, Vellore, Thanjavur, Villupuram and Nagapattinam, featuring the earnestness of overexploitation in the State. Coimbatore tops the rundown of regions detailing extreme water pollution, with more than 40% of its tried sources ending up being tainted as far as fluoride, nitrate, iron and faecal defilement. It is likewise seen that there are around eleven significant plans and measures carried out in the state to deal with the climate. Measures ought to likewise be started that equilibrium and congruity between Economic, a Social and Environmental need of the nation is vital, the support of willful associations, neighborhood instructive establishments; Services Organizations like Lions Club, Leo Club, Community Club, Jaycees, Junior Jaycees, Red Cross Societies, Exnora and so forth, should approach to deal with the climate adequately in the state,

Key Words: *Environmental Pollution, Solid Waste Pollution, Air Pollution, Water Pollution, Noise Pollution, Environmental Management.*

Introduction

Environmental issues, especially in ongoing many years, have stood out World Wide, uncovering an approaching period of shortage, the expression ecological emergency highlights the reality we are running out of assets and awkward to store or discard our squanders. Natural issues are normally neighborhood in beginning yet have impacts that quite often rise above provincial and public boundaries. All around the world, ecological debasement is showing itself through the deficiency of ripe soils, desertification, diminishing woodland cover, decrease of new water accessibility, and an outrageous loss of bio-variety. These are not kidding results, and it has become clear today that financial improvement should be ecologically maintainable. The shortages of regular assets currently undermine the supported usefulness of the economy and financial creation and utilization exercises. These exercises hinder ecological quality by over stacking regular sinks with squanders and toxins. The natural outcome of advancement will in general balance numerous advantages that might be gathering to people and social orders because of rising earnings. All the more significantly, the ecological harm can likewise sabotage future fulfillments and efficiency, if the components of creation are antagonistically influenced. Further, Environment is a network of different biological systems existing in a trap of sensitive relationship. Nature consistently attempts to keep up with balance among these biological systems. Nonetheless, man's exercises have begun influencing the nature of the

climate. Contamination is a critical feature of ecological concern separated from deforestation, regular cataclysms, starvation, and so on. The waste heaved by the formative exercises into the ecological assets without thought of the absorbing limit of these assets has genuinely influenced their quality. Contamination is distinguishable as adjustment of the physical, compound and organic characteristics of the regular assets – viz. water, air and land. The modern area has enrolled an enormous development during the most recent couple of many years. Contamination brought about by the modern area is very critical. Urbanization in Tamil Nadu is on increment without fail prompting subsequent issue of removal of fluid and strong waste. Tamil Nadu is the third industrialized and the most urbanized state in the country. The effect of Industrialization and urbanization on climate is considerable as confirmed from ascend in perilous and biomedical waste age, expanding vehicular populace and resulting expansion in energy interest and air contamination. The ecological difficulties in Tamil Nadu and endeavors to handle them through institutional instrument, expanded public mindfulness and enactment are clarified towards the finish of the report. Exacting improvement of natural enactment combined with ecological cognizance among people in general everywhere alone can bring better natural future for the present just as group of people yet to come. From the above setting, the current examination attempts to make an endeavor to account the major ecological issues and its main thrusts and results and further the alleviation measures for feasible living of the province of Tamil Nadu dependent on the accessible optional sources.

Objectives

The present piece of research work tires to study the major environmental issues and its driving forces and consequences and further the mitigation measures for sustainable living of the state with the specific objectives to study the Eco-Profile of Tamil Nadu and its Management; to analyses the form wise incidence of pollution in the State; to know the driving forces to the incidence of pollution in the State; to explore the management measures taken by the State to mitigate the pollution in the State; and to suggest possible policy measures to safeguard the quality of environment in the State..

Materials and Methods

To fulfill these objectives the required secondary data relating to the study have been gathered from various official documents- Economic Survey, RBI Bulletin, India- Infrastructures Report, Tamil Nadu-An Economic Appraisal, State of Environment Report, web sites, etc

Analysis and Discussions

Based on the data from the State of Environment Report, it is found that with a 13 per cent increase in very dense forests, a 7 per cent increase in moderately dense forests, and a 21 per cent increase in open forests, the total forest cover in Tamil Nadu has increased by 14 per cent between 2005 and 2015. The tree cover in Tamil Nadu however, declined by 20 per cent over the same period. It is also found that the reserved, protected and un-classed forests in Tamil Nadu registered a marginal decline of about 0.7 per cent between 2004-05 and 2013-14. It is also found that as many as 230 medicinal species, 126 fish species, 56 amphibian species, 77 reptile species, 32 bird species, and 40 mammals are under the red-list category in Tamil Nadu. These species require sustained attention for conservation.

Table 1. District Wise Qty of Hazardous Waste Generation in Tamil Nadu

SI.NO	Name of the District	No. of. Units	Total Quantity of HW Generation MTA	Land fills	Recyclables	Incinerable
1	Chennai	94	1644.41	187.82	1014.27	443.02
2	Coimbatore	368	23182.11	2261.46	822.48	98.16
3	Cuddalore	41	6541.25	4856.79	886.45	798.00
4	Dharmapuri	10	26.95	-	26.95	-
5	Dindugul	46	6055.56	5370.00	659.69	22.00
6	Erode	341	6191.71	5923.20	268.51	-
7	Kancheepuram	162	8913.88	6095.39	1750.42	1068.08
8	Kanyakumari	19	133.69	0.11	123.22	10.36
9	Karur	60	6482.43	6324.52	157.91	-
10	Krishnagiri	63	3324.17	1276.13	1481.02	567.02
11	Madurai	116	2007.51	964.06	564.23	479.21
12	Nagapattinam	17	652.34	296.28	290.59	65.47

13	Nammakkal	116	1664.31	1519.83	144.48	-
14	Nilgiri	11	685.82	618.00	51.82	16.00
15	Perambalur	13	286.36	1.68	137.69	147.00
16	Pudukkottai	29	478.53	443.07	35.40	0.06
17	Ramnad	10	9.19	0.10	9.09	0.01
18	Salem	118	13190.13	9474.83	794.82	2920.48
19	Sivagangai	20	223.51	162.02	60.79	0.70
20	Thanjavur	26	101.14	1.94	99.20	-
21	Theni	11	1029.05	1000.00	29.05	-
22	Thiruvallur	154	25011.55	5306.76	17960.48	1864.32
23	Thiruvannamalai	13	52.16	-	52.16	-
24	Thiruvarur	11	450.18	440.00	10.14	0.04
25	Thoothukudi	39	50026.93	39995.30	9958.43	73.21
26	Tirunelveli	38	1363.46	1171.58	126.50	65.39
27	Trichy	54	2906.55	990.10	972.72	943.72
28	Vellore	153	18308.32	13696.38	4264.25	347.69
29	Villupuram	17	483.63	445.18	28.44	10.02
30	Virudhunagar	40	429.83	161.39	135.78	132.66
	Grand Total	2210	181856.70	128.984.21	42.916.98	10.072.61

Source: Tamil Nadu Pollution Control Board, Chennai

With regard to the soil environment, cropping intensity increased by 51 and 47 per cent in the districts of Thiruvarur and Dharmapuri, respectively. It has increased significantly in Nagapattinam, Cuddalore, Villupuram, Thanjavur, Salem and Krishnagiri. In a majority of the districts, the area under non-agricultural use has increased over the period 2003-04 to 2013-14 in Tamil Nadu.

It is known that 14727 tonnes of municipal solid waste is generated per day in Tamil Nadu with close to 60 per cent of that coming from the 12 corporations. The state accounted for roughly 13.5 per cent of total biofertilizer production in India in 2011-12. Among the 12 corporations in Tamil Nadu, only six treat their municipal solid waste. In Chennai, other than the segregation done for recyclable waste by the sanitary workers, there is no further processing of municipal solid waste and it is disposed-off at two dumping yards at Kodungaiyur and Perungudi

The Government of Tamil Nadu has been proactive in setting up new biomethanation plants utilizing civil strong waste in the state. Following the fruitful testing of the pilot project at Arcot district, the Government has proposed to set up 29 new biomethanation plants of 3-5 MT limit across 5 partnerships and 24 regions in the state.

Over the time of study, the normal yearly SO₂ focuses expanded in all areas in Chennai, Madurai and Trichy, while the equivalent decreased in Thoothukudi and Coimbatore. But a few areas, the RSPM focuses expanded in all areas in Tamil Nadu over a similar period. The absolute number of engine vehicles has filled in Tamil Nadu by 125% during 2005-06 and 2013-14. Other than Chennai, Ariyalur and Coimbatore locale have high vehicle densities more than 200 vehicles for each kilometer of street length. Tamil Nadu delivered about 27% of all-India traveler vehicles and 13 percent of all-India business vehicles in 2010-11. Other significant enterprises with potential for air contamination incorporate sugar (which enrolled 72% expansion underway between 2004-05 and 2012-13) and concrete (where the state's offer expanded by 75% over period 2004-05 and 2011-12). The limited scale businesses have likewise expanded by 73% in Tamil Nadu between 2004-05 and 2012-13. In spite of noteworthy infiltration of cleaner cooking energizes like LPG, near 70% of families in Tamil Nadu actually use kindling and other strong powers for cooking in provincial regions, putting critical wellbeing trouble on ladies, kids and the older.

Table 2 Annual Average Concentrations of Air Pollutants in Major Cities of Tamil Nadu (in,µg/m³)

S. No.	City	S.No.	Location	Category	So ₂			No ₂			RSPM		
					Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
1	Chennai												
		1	Kathivakkam	Industrial	18	13	15	19	15	17	75	37	53
		2	Manali	Industrial	18	13	15	19	16	18	71	28	46

		3	Thiruvottiyur	Industrial	18	13	15	19	16	18	78	36	54
		4	Anna Nagar	Residential	17	8	13	36	16	22	159	72	101
		5	Adyar	Residential	16	9	12	30	16	21	69	41	55
		6	Kilpauk	Commercial	23	16	12	42	18	27	169	80	111
		7	Thiyagarayanagar	Commercial	26	10	16	42	20	29	189	90	121
2	Coimbatore												
		1	DCO	Mixed	5	4	4	31	22	25	55	29	44
		2	Ponaiyarajapuram	Residential	4	4	4	31	19	23	62	23	49
		3	SIDCOT	Industrial	5	4	4	34	23	28	77	45	60
3	Thoothukudi												
		1	Raja Agencies	Industrial	15	11	13	28	19	22	160	58	102
		2	AVM Buildings	Mixed	12	9	10	29	17	13	105	44	67
		3	SIPCOT	Industrial	16	12	14	25	19	22	98	49	74
4	Madurai												
		1	M/s Susee Cars & Trucks (P) Ltd.	Industrial	21	12	15	31	19	23	52	24	33
		2	Madurai Corporation Office (SZ)	Mixed	19	13	16	28	21	24	63	33	44
		3	Highways Project Buildings	Residential	17	10	14	28	18	22	41	29	35
5	Salem		Sowdeswari College Building	Mixed	9	8	8	29	23	25	85	48	61
6	Trichy												
		1	Gandhi Market	Commercial	19	14	17	23	19	21	120	17	105
		2	Main Guard Gate	Traffic intersection	19	17	14	24	18	21	131	109	118
		3	Bishop Heber College	Mixed	12	10	11	16	13	15	50	39	43
		4	Golden Rock	Residential	15	11	12	17	14	15	95	40	51
		5	Central Bus Stand	Traffic intersection	18	14	16	22	19	21	224	108	127
7	Cuddalore												
		1	Eachangadu Village	Residential	12	7	9	25	13	20	102	29	65
		2	DEE Office	Commercial	12	6	8	25	13	20	98	27	63
		3	SIPCOT	Industrial	9	6	8	22	13	19	85	35	58
8	Mettur												
		1	RamanNagar	Residential	8	5	7	25	19	21	67	39	49
		2	SIDCO	Industrial	11	9	10	30	20	27	89	44	64
Prescribed Standard (Annual Average) for Industrial, Residential, Rural & Other areas					50			40			60		

Source: Tamil Nadu Pollution Control Board, Chennai

It is discovered that with huge reliance on ground water for water system contrasted with channels and tanks, practically all regions report more than 50% of water system needs met through groundwater. A few regions, for example, Thanjavur, Perambalur, Viluppuram, Dindigul report more than 95% of their groundwater for water system. Nitrogenous supplements at present record for more than 66% of the absolute compost utilization contrasted with 51% in 2007-08. Expanded utilization of nitrogen containing composts prompts water contamination attributable to non-ingestion by the plant and draining into the groundwater. The groundwater improvement is accounted for more than 100% in a few regions including Chennai, Salem, Perambalur, Krishnagiri, Dharmapuri, Tiruppur, Dindigal, Coimbatore, Vellore, Thanjavur, Villupuram and Nagapattinam, featuring the reality of overexploitation in the State. Coimbatore tops the rundown of regions detailing extreme water pollution, with more than 40% of its tried sources ending up being sullied as far as fluoride, nitrate, iron and faecal tainting in 2011.

Table 3. Area wise Quality of Water Distribution in Tamil Nadu

S.No	District	% of water Contamination
1	Ramanathapuram	13
2	Dharamapuri	12.7
3	Virudhunagar	10.8
4	Sivaganga	10.7
5	Salem	10.1
6	Karur	5.8
7	Nagapattinam	4.5
8	Madurai	3.7
9	Perambalur	3.6
10	Namakkal	2.7
11	Thiruvallur	2.4
12	Erode	1.8
13	Thanjavur	1.5
14	Vellure	1.4
15	Thiruvarur	1.3
16	Krishnagiri	1.1
17	Tiruppur	1.1
18	Ariyallur	1.0
Mean = 5		
SD= 4.27		
C.V = 85		

Source: State of Environment Report, Department of Environment, Tamil Nadu

In January 2010, Government of India distributed standards of reasonable commotion levels in metropolitan and provincial regions. In India, the Noise Pollution (Regulation and Control) Rules, 2000 have been outlined under the Environment (Protection) Act, 1986. As coordinated by the Central Pollution Control Board (CPCB) every one of the State Pollution Control Boards (SPCBs) and Union Territories (UTs) need to do surrounding and commotion level checking during Deepawali celebration consistently. The surrounding air quality checking is completed at 163 areas and commotion observing is done at 209 areas the nation over covering 21 States. In Tamil Nadu state, encompassing air quality checking did in eleven urban communities and commotion observing completed at 28 areas in eleven urban areas. It is shown the situation with encompassing clamor level across Tamil Nadu on typical and celebration days. Since Diwali celebration is one of the headliners concerning commotion contamination, a few exports both State Pollution Control Board and the CPCB have broken down the clamor information recorded in urban communities on the celebration day throughout the long term. In view of commotion information recorded during Diwali 2015, in Chennai, Guindy (under the modern class) has the most elevated record of clamor level during day and night, in the business regions classification Pallikaranai recorded the least and Washermanpet recorded the most noteworthy, in the quiet regions class Anna Nagar has detailed the least clamor level. Notwithstanding, as of late CPCB directed the Ambient Noise Level evaluation at 70 areas in seven urban communities (Delhi, Mumbai, Chennai, Kolkata, Lucknow, Bangalore and Hyderabad) during Diwali celebrations over the course of the years 2011 to 2015. In Chennai, according to the perception of the report it is seen that at four of the five stations, the surrounding clamor levels have shown expanding pattern in the course of recent years

A new report developed Environmental Sustainability Index (ESI) for the locale of Tamil Nadu utilizing 2011-2 as the benchmark year. The ESI comprises of 45 markers spread across nine topical regions including, populace, land-use, horticulture, transport, water, backwoods, strong waste, energy, and yield. The examination distinguished Vellure, Karur, Perambalur, Virudhunagar, Krishnagiri, Dharmapuri and Tiruppur as the most un-supportable locale.

It is likewise seen that there are around eleven significant plans and measures executed in the state to deal with the climate, the significant plans are National River Conservation plan; Chennai City River Conservation Project; National River Conservation Program; Palar River Conservation; National Green Crops, Formation of specialized Cell, Environmental Awareness Camps and Competitions Schemes; Environmental Research and Development; Water Quality Monitoring Laboratory and Conservation of Coastal Eco-System.

Table 4. Status of Ambient Noise Level in Major Cities in Tamil Nadu

S.No.	District	City	Area/Zone	Normal Day	Festival Day
1	Chennai	T.Nagar	Commercial	75	81
		Sowcarpet	Commercial	79	84
		Triplicane	Residential	70	86
		Basant Nagar	Residential	61	78
		Nungambakkam	Residential	64	87
2	Vellore	Main Road, Gandhi Nagar	Residential	66	83
		Sainathapuram	Residential	62	88
3	Cuddalore	Imperial Road	Commercial	75	76
		Sekar Nagar	Residential	53	68
4	Hosur	Devaki Nursing Home	Commercial	64	83
		Transi House	Residential	63	82
		ESI Hospital	Silence	60	75
5	Salem	Shiva Tower, Meyyanur	Commercial	61	74
		Sri SaradhaBalamandir School	Residential	51	81
6	Trichy	Thillai Nagar	Residential	67	84
7	Madurai	Madurai Corporation south	Commercial	70	87
		Thirunagar	Residential	59	84
		Alagar Nagar	Silence	68	82
8	Tirunelveli	Samathanapuram	Commercial	64	88
		Tirunelveli Town	Residential	82	74
		Pettai	Silence	67	90
9	Dindigul	Municipality Building	Commercial	61	73
		NS Nagar	Residential	65	84
		Dist. Court	Silence	57	65
10	Coimbatore	SaibabaKovil Signal	Commercial	72	68
		Ponnirajapuram	Residential	67	82
11	Trippur	Kumaran Complex	Commercial	61	65
		Rayapuram	Residential	68	79

Source: State of Environment Report, Department of Environment, Tamil Nadu

It is additionally tracked down that National River Conservation Plan was started for the capture attempt, redirection and sewage treatment in the five significant urban communities, Namely Trichy, Komarapalayam, Erode, Bhawani and Pallipalayam with the venture cost of Rs.36.28 Crores in Tamil Nadu. Also, Chennai City River Conservation Project to Conserve Coowam River Buckingham waterway Adayar, Otteri. Nullah, Capitains cotton& Mambalam Drain with the venture cost Rs.491.52 crores.

The public River Conservation Program was begun for the contamination control in seven significant towns around the stream Cauvery, Vaigai and Tamiraparani-Trichy, Thanjavur, Kumbakonam, Karur, Mayiladuthurai, Madurai and Tirunelveli with the task cost of Rs.575.03 crores in the express, The Project of the Palar waterway Conservation for giving underground sewerage framework to limit contamination of the River Palar was likewise started by the state.

The National Lake Conservation Program was begun with the view to up degree of climate through bioremediation in Ooty and Kodaikanal with the monetary allotment of Rs.6.88 crores, The National Green Crops was Sponsored by the Government of India to 7500 schools, at first under these plans so for Rs. 1.87 Crores was spent to make natural mindfulness among understudies.

Table 5 Scheme- Wise Allocation of Amount on Environment

S.NO	Scheme	Amount
1	National River Conservation Plan	Rs.21.05 Crs
2	Chennai City River Conservation Plan	Rs.358.46 Crs
3	National River Conservation Programme	Rs.325.92 Crs
4	Plan River Conservation Plan	Rs.25 Crs
5	National lake Conservation Programme	Rs.1.97 Crs
6	National Green Crops	Rs.1.87 Crs
7	Formation of Technical Cell	Rs.53 Lakhs
8	Environmental Awareness Camps and Competitions	Rs.22.5 Lakhs
9	Environmental Research& Development	0.010 Cr
10	Water Quality Monitoring Laboratory	Rs.0.10 Cr
11	Conservation of Coastal Eco System	Rs.17 Crs

Source: State of Environment Report, Dept of Environment, Tamil Nadu

Recommendations

In view of the discoveries the accompanying ideas have been made to lessen the occurrence of contamination and shielding the nature of climate in the state. It is recommended that the strong waste administration in Tamil Nadu faces comparative difficulties as looked in other Indian states (urban areas) – including, lacking isolation of waste at source, and inappropriate removal in land fill site prompting genuine natural difficulties. Governments should make the isolation of squanders compulsory and regions could be approved to require fines whenever isolated waste isn't made free to the districts for assortment; Each region ought to recognize land for setting up of landfills on a need premise and land filling ought to be limited to non-biodegradable/inorganic waste.

It is suggested that the posts, especially of staff associated with the observing of contamination and the climate, be completely filled all together that these exercises might be done proficiently and adequately.

The absolute arrangement cost of the Central and State Governments, the distribution to the Environment and Forestry Sector is short of what one percent. A large number of the plans have designations that are too little to even think about having any genuine effect. Endeavors ought to likewise be made to guarantee noticeable portion of environmentally friendly power in the energy blend in introduced limit with regards to power age in the State and the limit of existing foundations should be upgraded to deal with unstable nature of sustainable power age with accentuation on making adaptable frameworks.

It is likewise recommended to order sun-oriented force age and use for normal lightings in every one of the new plugs and private designs/buildings. Further, to alleviate the Air Pollution in the state. eliminating of old vehicles, formation of successful and proficient vehicle framework; quick and savvy intra-city rail line network powerful, great street conditions with more flyovers and underpasses and so on; utilization of perfect and great quality fills like CNG; and rigid authorization of different guidelines/standards for controlling contamination may give a beneficial outcome.

Conclusion

It's obviously true that the fast monetary development experienced by the state is bringing about unfavorable and unsafe natural conditions that are influencing individuals of the state also the more extensive public and worldwide populace. Natural corruption is one of the concomitants of financial turn of events and its causes, for example, expansion in green houses gases, debasement of land, contamination of air and water, debasement loss of bio-variety and the delicate eco-frameworks represent a test to the country's arrangement producers and organizers

in guaranteeing manageable monetary development. A few drives have been taken by the public authority for contamination abatement in streams and lakes other than advancing ecological cognizance among general society everywhere. Environmental preservation requires making of mindfulness and attitudinal change among individuals. Since the guaranteeing the ecological manageability is one of the eight Millennium Development Goals and Sustainable Development Goals, the National Environmental Policy was endorsed by the public authority of India for preservation of basic natural Resources; Intra-Generational; Integration of Environmental worries in financial and social turn of events, Efficiency in Environmental Resources use; Environmental Governance, Enhancement of assets for ecological protection. Measures ought to likewise be started that equilibrium and amicability between Economic. Keeping a solid climate isn't the states obligation alone, yet additionally that of each resident public-private organization is critical in the range of natural administration, The ecological issues, issues, ecological perspectives, which would essentially affect deliberate biological conduct should be stressed that may coordinate individuals towards safeguarding and preservation of climate. Consequently, the support of deliberate associations, neighborhood instructive foundations; Services Organizations like Lions Club, Leo Club. Community Club, Jaycees, Junior Jaycees, Red Cross Societies, Exnora and so forth, should approach to deal with the climate successfully in the state,

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