



Green Entrepreneurship: Products and Availability of Market - A Descriptive and Explorative Research in Ethnomedicine with Special Reference to Jharkhand

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Abstract: *Limitations of ethnomedicines gave rise to emergence of Modern Medicines, and the drawbacks of Modern medicine gave rise to resurgence of ethnomedicine.* Jharkhand is one of such State that is blessed and bestowed with the treasure of trees with medicinal and nutritive values, being used by its ethnic and tribal communities. This led to the genesis of “ethnomedicine” being practiced by tribal communities for their well-being, living hood and health measures of their community.

This paper examined and explored the opportunities of green entrepreneurship in Ethnomedicine. The available literature throws ample lights on availability of ethnomedicinal treasure in Jharkhand but could not link this to entrepreneurial activity. Also, a need is felt to recognize and preserve such knowledge of ethnomedicine in tribal communities. The researcher used library-based studies and interviews with the tribal community people in Ranchi and nearby area. The findings revealed a positive sign about the better scope of entrepreneurship in herbal medicine and the suggestions would contribute to suitable policy to support to the green entrepreneurial aspirants in the field of medicinal plants/ herbal trees in Jharkhand.

Key Words: Complementary Medicine, Ethnomedicine, Ethno-Vaidyas, Ethnic Group, Entrepreneurship, Green entrepreneurship, Medicinal Plants, Tribal Community, Jharkhand.

1.0 Introduction:

There are no worthless herbs — only the lack of knowledge.” ~ *Avicenna* is the true reflection about the Indian’s *ethno-jewels*. India is the land of herbs, practice, and process of treatment through the herbal plants with their medicinal values. Unfortunately, this has been outshined by modernization and modern medicine. ^[1] Since time immemorial, Jharkhand State being the land of Lord Baidya Nath, known as natural sanctuary of spiritual, cultural and herbal heritage in India.

In the remote areas and in the jungle of the Jharkhand, it is ethnomedicine that echoes and is the only available remedy and resources for the health practices against the general ailments in tribal community. But this is not sufficient and also this practice need to be preserved and converted into a commercial outcome that is possible only through entrepreneurs.

The **entrepreneurs**, in simple terms, are the new generation of businessmen with innovative skills and having capacity to bear the risk. Those entrepreneurs who endeavor and envisage into the field of natural resources, ecofriendly products with sustainable commercial outcome are generally termed as **green entrepreneurs**. ^[02] The definition of green entrepreneurship was first stated by Berle (1991) by referring to the idea of an

“environmentally friendly entrepreneur” so that it becomes a responsibility to create something expected. In this context, **green entrepreneurship** has been cited as an important channel towards sustainable products and services. It includes the business with the spirit and philosophy of protection and promotion of environmental aspects. This is a challenging but most awaited sector of entrepreneurship, especially in terms of ethnomedicine. Conventionally, ethnomedicine is the indigenous system of healing to general ailments and diseases by the ethnic group through the herbs, plants and trees having medicinal values. They, however, in a broader genesis, are multi-disciplinary and are the subset of Ethno-Science. ^[03] **Ethnoscience** is the study of direct interrelations between humans and plants, and recently the term was defined as the science of people’s interaction with plants; it is a multi-disciplinary subject.

In a broader outlook, and due to being a few more terms related to this context, it is presumed to be the subset of **Ethnobotany**, ^[04] which is a multidisciplinary science aims at investigating and inventorying traditional knowledge and Ethnomedicinal plants.

The term “ethnomedicine” is the combination of two connotations: ‘ethno’ and ‘medicine’; where medicine is ordinate and ethno is subordinate that defines the characteristics and nature of medicine. However, ^[05] ‘**Ethnomedicine**’, as defined by George Foster and Barbara Anderson in their 1978 essay *Medical Anthropology*, is the totality of health, knowledge, values, beliefs, skills, and practices of members of a society, including all the clinical and non-clinical activities that relate to their health needs. ^[06] Ethnomedicine refers to the study of traditional medical practice which is concerned with the cultural interpretation of health, diseases and illness and addresses the healthcare seeking process and healing practices. ^[07] It focuses on beliefs and practices in various human populations concerning sickness and health. Ethnomedicine observes and describes hygienic, preventive, and treatment practices, taking temporal and spatial considerations into account.

Jharkhand is the cradle of 50,000 species of medicinal plants which are bestowed with such curative properties and nutritive values, which much has been explored but still need to be harnessed through the green entrepreneurship.

Jharkhand has a very large percentage (=26.21%) of tribal population, but their earning sources are very low and mostly dependent on plants and forest produce. They cannot afford the fees of modern medicine, to which they use ethnomedicine for their primary health care. ^[08] The knowledge of ethnomedicine is carried out from generation to generation among ethnic people orally and the medicinal plants survived in their minds and soul. The disorders include malaria, menstrual cycle disorder, toothache, leukoderma, dog bite, skin disease, vitality, joints pain and contraceptive. Such is the ethno-medico-treasure which most of the tribal community boasts of, and they enjoy the patronage of the local community doctors normally are called the Vaidyas or Kaviraj. In modern terms they may be termed with no better expression other than **Ethno-Vaidyas** who inherited the knowledge and information about the medicinal herbs and plants, and their proprietary usage in various ailments.

The earlier studies and research throws light on abundance of herbal/medicinal plants in Jharkhand. There are also Govt. schemes to support entrepreneurial activities. Unfortunately, the modern intervention among the rural youth has abrupted this transfer of knowledge and digressed their interest, and therefore, there is need that their knowledge and practice should be preserved as per the systematic pharmacological measures and be optimized commercially through entrepreneurs and entrepreneurship.

Through the library based and qualitative studies, the researcher intended to explore the scope of green entrepreneurship in ethnomedicine, its challenges and suitable ways out to convert the available herbal treasure and knowledge into commercial entity through start-ups or entrepreneurship. The study conducted by the researcher has been enhanced by observations, interaction and interviews by the community people who can be termed with no better words than ethno-vaidyas. The findings are encouraging and pave a path to understand the gap between the current status and future possibilities for the budding entrepreneurs in the field of herbal/ethnomedicine field.

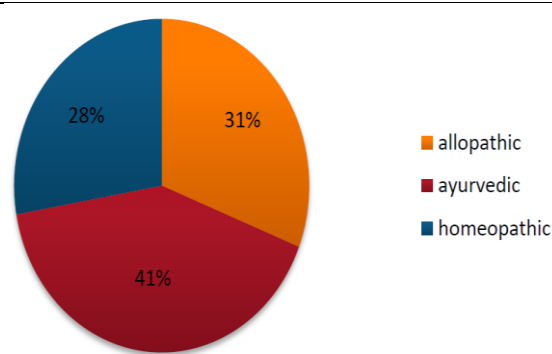
2.0 Literature Review / Research Gap / Problem

^[10]The use of herbal treatment is increasing all over the world where the traditional knowledge has played a vital role. ^[11]In India, the reference to the curative properties of some herbs in the Rig Veda seems to be the earliest records of use of plants in Medicines. ^[12] India is a country with large ethnic society and has immense wealth due to which it is rich in biodiversity. There are 9,500 species that are ethno botanically important species. Of these 7,500 species are in medicinal use of indigenous health practices.

^[13]Local knowledge holders have alternative been labeled as “guardians of the earth”, “conservationists”, or as subsistence consumers. ^[15] For centuries, healers and indigenous people have been collecting medicines from local plants and animals.

^[13] They present opportunities for direct nutritional supplementation as part of a balanced and varied diet, contribute to health maintenance as functional or medicinal foods. ^[14] Tribals do not believe in modern medicines and used to treat diseases from local medicine men called *Baidhyas*, *Guni*, *Ojha* etc. In other various places, these tribal herbal practitioners locally called ^[15]as *Jangurus*, *Kavirajs*, *Pahans*, *Manjhis*, *Horopaths*.

There are various Indian Systems of Medicines namely from the first Ayurvedic system, Homeopathic System, Unani System and as complementary medicines are Yoga, Siddha and Naturopathy systems of Medicines. However, the Ayurvedic ie Herbal Medicine System is regarded as most trustworthy system, preferred by most of Indians. ^[16] Kushagra Nagori, et al, conducted a survey among 492 people in CG on “Which System of Medicine is better?”, the response was encouraging as presented in Pie Chart :



^[12] There is a widespread belief that the green medicines are healthier and more harmless or safer than synthetic ones. These green medicines as has been explored by the ethno-vaidyas and ^[17] found to be useful in the treatment of skin problems, cold, fever, cough, headache, diarrhea, toothache, stomachache, wounds, diabetes, rheumatism, asthma, dysentery, hair loss and poisoning (snake, scorpion and insect bites), but often vary from one tribal group to other. ^[18] They have acquired this valuable knowledge from experience, trial and error methods. This knowledge has been passed down from one generation to the next generation by word of mouth, what is known as the ethnomedicine system.

^[19] Ethnomedicine is a kind of medical system among the tribal communities in which the community members utilize the medicinal plants and animals to cure groups, cure different diseases. ^[15]“Ethnomedicine’, is the totality of health, knowledge, values, beliefs, skills and practices of members of a society, including all the clinical and non-clinical activities that relate to their health needs.

Ethnomedicine paved the path of modern medicine. ^[103] Many important modern drugs (such as digitoxin, reserpine, tubocurarine, ephedrine, to name a few) have been discovered by following leads from folklore. ^[20] In India, a range of medicinal plants are used as antidotes for snakebites, used either singly or in combination with other agents.

What is needed is to attract, encourage and support entrepreneurs to consider and undertake this new field of business. Through his business acumen, innovation and strategic plan, the entrepreneur on one hand makes his mind for profit and growth of his business from the initial stage, and on the other hand he aspires for achievements and recognition at the final stage. However, from the various definitions, characteristics, and functions of the entrepreneur, it can be expressed that an entrepreneur is an opportunity seeker who sails his Capital-‘ship’ through the oars of his innovative and business skills in the ocean of uncertainty, involving the perceived risk there in to, and if mapped all, later he enjoys the fruits of success and recognition.

$$\text{Entrepreneur(ship)} = \int_{i_1}^f [\text{Capital} \times \text{Innovation} \times \text{Business Skills}] d_C, d_I, d_B$$

Where 'i' is the **initial value** of input (in terms of opportunity & investment) and, 'f' is the **final outcome** (in terms of success and recognition).

The business entities are now more inclined from conventional to Green and this has resulted in a newer version of entrepreneurship.

Thus, ^[21] Green entrepreneurship refers to a special subset of entrepreneurship that aims at creating and implementing solutions to environmental problems and to promote social change so that the environment is not harmed.

Jharkhand is a promising State in terms of opportunities for Green Entrepreneurship in the domain of ethnomedicine, forest produce and wooden anticraft.

^[22] Jharkhand is rich in biodiversity of medicinal plants with the forest area is about 29.62% of the total area of Jharkhand. There are 50,000 species of wild plants out of which 9500 species are ethnobotanically important and 7500 species are used as medicinal and herbal health practices.

Out of total population of 33 million, 26.21% are recorded as the tribal population in Jharkhand in last Census of India. They use medicinal plants by their traditional knowledge and these traditional medicinal practitioners known as *Vaidyas* or *kavirajas*. ^[23] They are expert in folk medicines and use a number of ethno-botanical plants for curing a number of ailments like, post-delivery complications, bone fracture, abortions, preventing miscarriages, chicken pox, jaundice, fever, headache, prevention of sunstroke, reduce rheumatic pain, intricacies of newly born babies etc.

Many researchers have found and elaborated the availability of ethnomedicinal plants in various Districts in Jharkhand and gave elaborative findings with their usages for various ailments and various diseases. In many of their findings, the ethnomedicines have the potential to give relief in severe or critical cases like that of snake bites, male sterility, bone fracture, cancer, etc.

Table-1 gives the analytical understanding of the qualitative parts of the plants used for treatment of ailments by the ethno-vaidyas. Leaves constitute the most appropriate constituents of ethnomedicinal formulations used by them. In second place or equivalent, the roots contribute to treating the human diseases. There are also many plants whose whole parts are used in various diseases.

But there is hardly focus or light on entrepreneurship by which the ethno-vaidyas can transform their knowledge and availability of abundant ethnomedicine into commercial outcome. However, their findings are encouraging to understand and appreciate that Jharkhand has a very promising future for prospective opportunities for industries in ethnomedicine.

3.0 Opportunities in Jharkhand

Numerous research scholars have undergone and explored the ethnomedicinal treasure in almost each district of Jharkhand. Each of their findings emphatically reflected the importance, availability in abundance and usage of ethnomedicine plants in various ailments and diseases.

^[12] The ethnic community of India has played a vital role in preserving biodiversity, otherwise these flora and fauna might have been disappeared from natural ecosystems. *A. marmelos* is one such tree which has been conserved for ages and proved to be a good cash crop for the rural and tribal people.

From the above works and findings of the previous research scholars, it is evident that Jharkhand has the potential to optimize its ethnomedicinal resources, utilize the experience and expertise of the *ethno-vaidyas* and attract the entrepreneurs to venture in ethnomedicine industry as a new hope of the ethnic community development.

^[24] Meanwhile, modern medicine is desperately short of new treatments. Drugs take years to get through the research and development pipeline, at enormous cost. And rising drug resistance, partly caused by misuse of medicines, has rendered several antibiotics and other life-saving drugs ineffective. So scientists and pharmaceutical companies are increasingly searching Traditional Medicine for new drug sources.

Apart from the herbal or medicinal products, ^[03]plants produce economically important organic compounds such as oils, resins, tannins, rubber, gums, waxes, dyes, flavors and fragrances, pesticides and pharmaceuticals.

^[03]The known herbal products have gained so much public acceptance over time and continue to enjoy increased patronage among consumers. The study revealed that the herbal formula was capable of elevating plasma levels of liver enzymes and inducing hypokalemia after 30 days of administration in rats.

In Jharkhand, whereas there is abundance of resources (ethno medicinal plants), experience and expertise of the ethno-vaidyas and support from the Govt. schemes, it only requires entrepreneurs who can exploit the opportunity into industry, who will not only transform the resources into commercial outcome, but also develop the eco system and system of economy for the tribal and ethnic community.

However, to preserve the unaccounted knowledge of *ethno-vaidyas* into record is a major challenge. Because ^[05] like the extinction of plant and animal species, the practitioners of ethnomedicine appear to be at a greater risk of extinction than even forests and other biomes. Knowledge of the use of plants and other species is disappearing faster than those species themselves.

4.0 Problems, Challenges and factors

Entrepreneurship in Ethnomedicine, whereas has maintaining scope for its niche progress, it has equally a valley of problems and challenges. Jharkhand is the land of mining also, and expansion of this industries in search of black gold has threatened the flora-fauna eco balance, especially the ethno-jewels. ^[25] Rest of the plants are considered as vulnerable, less common and near threatened status.

^[05] Like the extinction of plant and animal species, the practitioners of ethnomedicine appear to be at a greater risk of extinction than even forests and other biomes. ^[26] The crucial knowledge of which plant is valuable to therapeutic medicine is disappearing at an alarming rate because of modernization and lack of interest and ^[17] not having enough knowledge of traditional Medicine systems in young generation. ^[15] But, unfortunately, it is handed over verbally from their ancestors to the successive generations, without any compilation and scientific documentations.

However, for the oral dosages, there is no standardized process of preparation, nor in quantity nor its power or potency of the medicine, that be decisive scientifically for giving to the patients as per their age or requirement. ^[27] The first barrier is that traditional remedies have neither been rigorously evaluated nor properly standardized. They are also poorly prepared, packaged and preserved.

Further ^[03] herbal medicines and related products are introduced into the market without any mandatory safety or toxicological evaluation. Move over, among the urban or metropolitan users, there may be mis belief that these herbal medicines are not very effective. ^[19] Ethno medicine has its limitations that it cannot be effective for deadly diseases like cancer, therapies diabetes, blood pressure.

Invasion of unprotected indigenous resources including traditional knowledge which has been termed biopiracy, represents major challenges. ^[27] It became apparent that issues of intellectual property rights, indigenous knowledge, ownership, benefit sharing, biopiracy, trade secrets, materials transfer and confidentiality contracts would clash, and if not properly handled. But despite limitations, the ethnomedicines look forward and invite for entrepreneurial initiatives in Jharkhand.

5.0 Green Entrepreneurial Process in Ethnomedicine

When there is ample resource of raw material and various support schemes, there is only need to start any start-up in the field of Ethnomedicine. Despite its challenges, it has the greater potential for new business through green entrepreneurial activities in Ethnomedicine.

There are many steps to delve into entrepreneurship. Briefly to sketch the entrepreneurial activities, it is the 'P-R-R-A-N' that includes the Planning – Resources - Risk analysis - Action & Networking. These all elements constitute the 'pran' (life) of entrepreneurship.

The researcher explored various literature sources on entrepreneurship and based on it, the various steps for starting an entrepreneurial activity, can be categorized in two groups: Phase-1: Inception and preparation (Check list / to-do list), and Phase-2 : Implementation of Business Plan into action. Since, beginning is the most important which every entrepreneur apprehends the toughest step for new startup, the researcher focused on the phase -1 as outlined below:

Phase -1: Checklist / to-do list: This is most important and crucial phase before thinking of any business/entrepreneurial activity: It involves various micro level steps; however, the order of a few steps may vary according to the capabilities and resources of the budding entrepreneur.

1. To make up mind by mapping with the background experience in family or colleagues.
2. To map one's basic strength, skills, fund and risk required for business.
3. To select the business domain and types of business
4. To observe the functioning of existing businesses of your level of choice(s) – with creativity, insight, and innovation.
5. To explore the gap or new opportunity you can conceptualize as what new/addition can be done for businesses / Services or new B2B can be outlined.
6. After prioritizing, to finalize the prospective business in order with mapping with Point (2)
7. To prepare a primary business concept/plan.
8. To speculate the number of partner(s) as may be required or involvement of experts/consultant required for
9. To undertake market research at further level from the point of view of customers preference, and consumers' questions as why your business/product/service would be beneficials to them.
10. To remap by doing SWOT analysis to review the feasibility and prepare operational methodology at micro level as per questions from the consumers' point of view.
11. To identify and finalize the prospective partners and/or office bearers of the company and discuss/debate and finalize after expert consultation.
12. To identify the potential sources of funds, equity, assets, and allocation as per availability of fund, funding schemes/subsidy by the Govt. / NGO.
13. To identify the sources of raw materials, or B2B networking, and arrangement of machines required on credit up to certain limit period.
14. To identify the location of business unit with location advantages for its operation and minimum logistic wastage/costing.
15. To review in holistic point of view with primary Strategic Plan with the Cost & Benefit Analysis
16. To finalize the name of the Company and office bearers with job roles/responsibilities with the partners, office bearers and consultant.
17. To prepare the Bye Laws of the Company, Board Members, and process to register the Company/Business unit with operational limits at National and International level.
18. To open a bank account with feasible overdraft facilities, and loan arrangements if any required.
19. To obtain relevant statutory/regulatory license, permission, trade license, and documentary compliances as per concerned departments' requirements.
20. To mobilize the fund/resource and allocate as per major operational heads.
21. To recruit the manpower, train them as the future of the company depends on the quality and commitment of the employees (human resources) deployed, trained, and oriented as per consumer's expectations.
22. Execution of Business Strategy Plan.

6.0 Solutions, Suggestions, and ways out

As ^[26] there is a continuous risk of being distorted or being extinct for all these plants. Therefore, the first and foremost initiative to be taken is the preservation and plantation of medicine plants through a special drive for plantation of a few groups of medicinal plants.

[27] Traditional healers could be living libraries or reservoirs of indigenous knowledge and insightful experiences. The **ethno-vaidyas** should be searched and should be recognized for their specialized knowledge as per their specific healing practice. They should also be motivated by giving them suitable financial support or an honorarium to keep their expertise and skills active and for their community wellbeing.

The treasures of ethnomedicines are to be recorded and documented in such a way that the mass public may be aware and could be identified minutely. Furthermore, the State Govt. should initiate a platform for interaction and training to these ethno-vaidyas to give them insight and hand holding with the required tools and equipment free of cost.

In order to promote ethnomedicine as a rural based self-reliant source of income, the Govt. should make sincere efforts to promote it like that of *Kishan Mela*. The State Govt may also celebrate this by declaring any one day fixed as *Jharkhand Vaidyaki Diwas*. More educational programmes may be conducted in the vicinity of towns and villages.

The Govt. should adopt suitable mechanism for ensuring the validation of legal rights to the ethno-vaidyas who have the expertise and recognition. Necessary measures and simplified process should be adopted by the Govt. for the patent. This will help India to be the country with the best number of patents in the ethnomedicine.

The efforts and subsidies are available, but there is a need to increase in the quantum and need in awareness programme to the youth in towns and villages. The investors may also be attracted to explore the opportunities in ethnomedicine.

[28] In a research report approx. 33 percent youth are doing nothing – nor in higher education, nor in the job or training. These youth may potential entrepreneurs. Further, as the UGC has introduced the NCC as a compulsory elective course in all higher educational institutions, in the same way “Entrepreneurship” should be a mandatory credit course in every programme at graduate level.

7.0 Discussion, Analysis and Results

Jharkhand state is rich in terms of herbal medicinal plants called *ethno-jewels*, and being nurtured by *ethno-vaidyas* who are the leading knowledgeable persons of the tribal community. These Vaidyas are the living libraries of ethnomedicines. Referring the Table-1, the analytical findings on potential curative properties of such medicinal plants, reveal that there are numerous medicinal plants to treat like cancer (75 plant species), bone fracture (11 plants species), male sterility (15 plant species), anti-venom & snake bites (100 plants) and many more plants for common ailments. Mostly of the parts of the medicinal plants, surveyed by the various researchers, leaves as the parts of the plants, constitute the most appropriate constituents of ethnomedicinal formulations used by them. In second place or equivalent, the roots of the medicinal plants contribute to treat many of the common and serious human diseases. In order to curb the growing unemployment and eradicate poverty in the State, it is now high time to attract the youth through the awareness programmes, training, subsidies, more lucrative schemes and ease of doing to the budding entrepreneurs.

8.0 Conclusion

Limitations of ethnomedicines gave rise to emergence of Modern Medicines, and the drawbacks of Modern medicine gave to resurgence of ethnomedicine. The aim of the research was to explore the opportunities for entrepreneurship in ethnomedicine in Jharkhand. Jharkhand is the land of forest and also one of the richest states in the field of ethnomedicinal plants. The studies had already shown the abundance of ethnomedicine, the poverty in tribal area is also to be attended, the youth in villages need skilling and employment. Though support and subsidies are available by the Govt. both at central and state level. But there what the need is felt, is the road map and implementation with commitment. There is need of the integrated system and a pool of experts and professionals who can chalk out the road map to eradicate the village poverty through institutional support system to identify, recognize and train the ethno-vaidyas, and to support them financially to establish the small

ethnomedicinal units. The suggestions and the findings of the research are likely to contribute in policy making, in awareness programmes and implementation at educational institutions level.

Table -1: Analysis of findings of various pervious researches on curative properties and usage of parts of Ethnomedicinal plants.

Sr.	Previous Researchers	Year	Area Suveyed	No. Treatment of ailments	No of Plants Species	Usage of Roots/tube s / Rhizome	Usage of Barks	Usage of Leaves	Usage of Stem	Usage of Fruits	Usage of Seeds	Usage of Latext/ Gum	Usage of Flower	Usage of Oil	Other / Mix/ Multiple Parts	Whole Plant	Maximu m Part used
1	SHEETAL SHAMA MINZ AND KUNUL KANDIR	2010	Ranchi	Multi Diseases	15	8		1	1	1	4						Roots
2	Hari Shankar Lal and Sanjay Singh	2012	Hazaribag	Multi Diseases	95	4	2	21		2	3	1	2		53	7	Leaves
3	Raphael Ranjit and S. John Britto	2014	Latehar	62	67	23	15	13	3	3	3	3		2	2		Roots
4	Kalpana Prasad	2015	Bokaro	Multi Diseases	99	12	11	49		4	9	2	1		11	1	Leaves
5	Dolly Tudu and Vishnu Shankar Sinha	2017	East and West Singhbhoom	Multi Diseases	30	2	2	10	1	4	1		1		8	1	Leaves
6	Sughosh V Upasani et.al.	2017	India	Snake Bite	100	28	11	23	4	5	7				12	10	Roots
7	Paras Jain et al	2017	Jharkhand	Multi Diseases	75	14	3	8		9	10		1		30		mixed parts
8	Dara Singh Gupta and Ashok Kumar	2018	Tamar, Ranchi	Bone Fracture	11	2	1	1							4	3	mixed parts
9	Manoj Raul and Dipankar Chatterjee	2021	Benti Village, Ranchi	Multi Diseases	50	17	6	6	2	5	9	2			2	2	Roots

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