

## **EMERGING FIELD OF GEOETHICS- BUT IS IT NEW TO US?**

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### **ABSTRACT**

*The discussion on human interactions and their outcomes on the Earth and its resources is endless. A newer aspect to this in the current context is added by the concept of geoethics. Defined basically as identification, selection and application of behaviours and practices that are responsible towards the Earth and its elements, it is gaining discussion across the world as an emerging field. Nations across the world are attempting to combine scientific knowledge and the philosophical, social and economic best practices to deal with the ongoing destruction of their natural environments. Geoethics is a movement which is gaining ground as a method of identifying theoretical concepts which can be joined with practices to enhance human life and protect the Earth. With this as the objective, the methodology involves detailing out the concept of geoethics and checking how India fares in this concept. Findings of the study indicate that not only is the concept integral to our philosophical underpinning since times immemorial but in fact has been advocated as the Indian way of life. In fact, we don't require any new introduction to this but an emphatic re-orientation of life in consonance with responsible behaviours in today's world. The understanding of traditional concepts and their practical application can help save the world and make it a better place to live in.*

**KEYWORDS:** *Geoethics, Earth, India, World, Practices.*

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### **INTRODUCTION**

The paper is organised in two parts. The first part deals with the explanation of the emerging branch of geoethics and its components. The second part proceeds to observe, examine and analyse the concept with regards to theories and practices in the Indian context in historical and current contexts. Geoethics- Derived from two terms 'geo' and 'ethics', 'geo' refers to Earth and 'ethics' relate to examination of human etiquettes and practices on a common basis with an aim to examine them (Peppoloni & di Capua, 2012a).

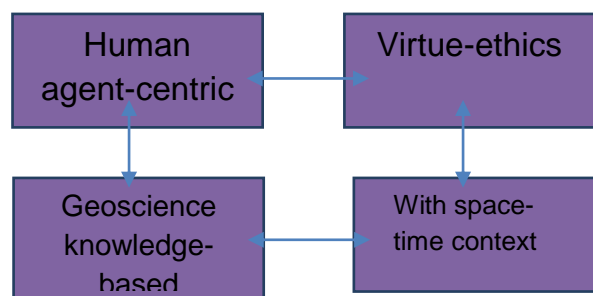
The term 'ethics' is credited to the branch of philosophy dealing with moral codes and principles and trying to find out explaining what is 'right' and 'wrong' at all levels. It tends to identify and explain what can be attempted, discarded, praised or condemned (Blackburn, 2021). It also tends to observe what should be followed (Mizzoni, 2017). Extending the basics of ethical thinking to geoethics, it can be said that it is a branch of thinking which promotes responsibility as a part of activities and profession (Mizzoni, 2017) leading to sustainability (Bohle & Marone, 2021). In

this discussion, sustainability as a concept can be seen as a brand, dealing with the creation of specificity of the concept (Bohle & Marone, 2021).

Broadly explained, geoethics can be said to be a combination of activities which focus on right practices with regards to human interaction with the Earth. The human activities should be right and correct in this direction so that the effects of geo science knowledge are considered on the ethical, social and cultural impacts of this knowledge. It is also defined as a way of thinking which can be placed as an interface between science and society (Peppoloni & di Capua, 2012b). Before proceeding to the field of study and nature of geoethics, a historical background can be drawn for its development as a concept. The literary beginnings of the aspect can be seen in the 18<sup>th</sup> and 19<sup>th</sup> centuries because this was the time period when discussions on human influence were getting recorded. The impacts of Industrial Revolution were pertinent in this (Peppoloni & di Capua, 2012b).

Extending it to the 20<sup>th</sup> century, it can be said that in the 1990s, this concept start gaining recognition with geoethics was taken to explain the social and ethical outcomes of geosciences. It can be seen to have gained a formal ground in 2014 with an oath as 'Geoethical Promise'. Translated into 35 languages, it is an oath for geoscientists to include Earth science systems (Peppoloni & di Capua, 2012b). It is cited as professional ethics system in geosciences and tends to outline the process of finding out correct behavioural and practical values in all aspects wherein human interactions are observed with the Earth and its elements. The aim is to generate awareness on human role on the planet. The basic premise of this approach is that of responsibility on humanity (Peppoloni & di Capua, 2012b). The definitional aspects of the concept arise from not only discussing but also researching upon the value systems which form the base of right methods as well as practices that determine human interaction with the Earth (Lynn, 2000). Geoethics can be observed to be pioneered in the works of Slivia Peppoloni, and Giuseppe Di Capua (Italian geologists) and others, who seem to have popularised the concept globally. From defining the dominating influence of human activities as defined as 'Anthropozoic era' by Italian geologist Stoppani and as the 'Anthropocene' by Nobel Prize winner Crutzen, it tends to suggest the dominating influence of human activities (Peppoloni & di Capua, 2021). The published works of Peppoloni and di Capua highlight four fundamentals of this approach as seen in Fig.1.:

**Fig.1. Fundamentals of geoethics approach**

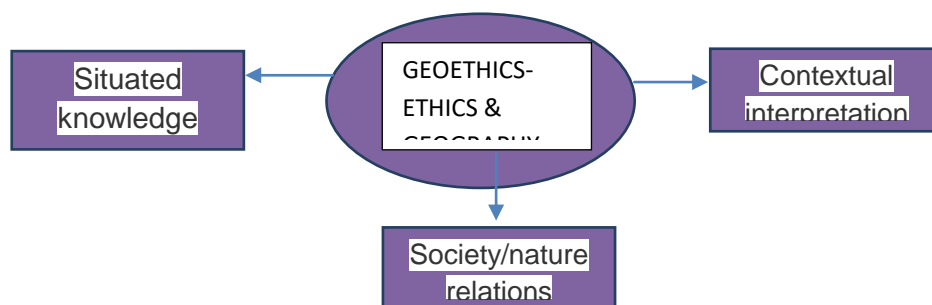


**Source- Author, 2022 (as given by Peppoloni and di Capua, 2015)**

On the basis of research works, the following broad aspects can be outlined to explain the concept, its nature and significance:

A. **Definition and Nature-** Geoethics is a clarion call to human beings to accept their responsibility towards Earth. It is taken as an interface between geography and ethics. Although both are independent disciplines, but their rubrics tend to be similar with regards to focus areas as shown in Fig. 2.

**Fig.2. Geoethics- Geography and Ethics**



**Source- Author, 2022 (after Lynn, 2000)**

In its current form, it can be said to have begun since 1991 as a combination between ethics and geology(Nemec, 2005). Further, in 1992, Dr.Nemec, Head of AGID Working Group for Geoethics(considered as the father of geoethics), advocated its dissemination and contents(Martínez-Frías et al., 2011). With its further recognition at international forums, it was for the first time included in the 33<sup>rd</sup> Geological Congress at Oslo in 2008. Launch of a devoted website and later in 2011, a peer reviewed journal titled 'Geosciences' was introduced to promote the concept. Many such other efforts can be outlined in this direction (Martínez-Frías et al., 2011). The evolution of geoethics, as discussed, is in the realisation that human activities require responsibility while interacting with the Earth. Peppoloni and Capua highlight the 19<sup>th</sup> century efforts of recognising human beings as a 'geological force' (Peppoloni & Capua, 2015; Peppoloni & Capua, 2017).

Since they have the tendency and strength to alter the Earth's environment through usage, they ought to have an equal responsibility towards it. It tends to provide a framework to scientists to operate. It is mentioned that due to the implications, the concept should be taken as a compulsory requirement in geoscience theory and geoscience research. The ideas incorporated in geosciences need to be taken as problem solving and providing with fresh ways of dealing with problems facing the world with respect to sustainability issues. Besides providing a definition, the proponents have also tried to provide four levels of content as analysis, topics, goals and values to explain it further. 'Geo' is broadly taken as the place of dwelling of human beings and 'ethics' relate to a sense of belonging to the social realm and also to individual's realm(Peppoloni & Capua, 2015; Peppoloni & Capua, 2017).Combining the two, it deems social and individual responsibility for the planet. The foundational basis of geoethicsas identified at four levels are that of the individual, colleagues, society and theEarth. Geosciences have an additional advantage with responsibility of identifying all this in terms of dealing with choices in a globalised world. In fact, it is also said that the current day issues have given rise to two distinct branches of study as – geoethics and geoconservation with an intermingling of objectives and themes (de Tarso et al., 2021). This branch of study is said to have made a remarkable progress

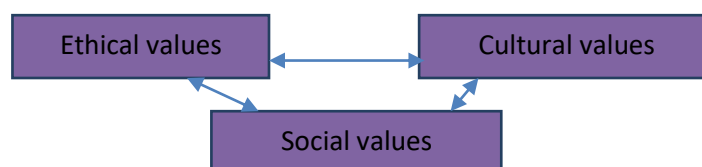
by acting as an interface between disciplines. But it is still not widely known (Martínez-Frías et al., 2011).

B. **Aspects-** The concept involves both theory and practice. The definitional aspects of the concept also give rise to three concerns as follows:

- Understanding when an ethical issue is coming up
- Constructing a framework of similar values to be embraced by the geoscience community as well as society
- Identifying an ethical criterion which can give direction to geoscientists to base their technical decisions.

The issues regarding right and wrong arise when there are two sided questions related to options. The problem in this regard arises when both the options indicate negative externalities. Geoethics answers this as problem as defining what is 'appropriate'. This is again studied by observing what is shared in the basis of commonality of values (Lynn, 2000). This will also be those who will bear the consequences of the same with the ultimate aim of highest social benefit. Solutions to these problems are found on the basis of sustainability, nature conservation, human health, and others like this (Peppoloni & di Capua, 2021). For this purpose, some reference points can be identified as in Fig.3.

**Fig.3. Reference points of geoethics**



**Source- Author, 2022 (as given by Peppoloni and di Capua, 2015)**

C. **Practice-** It has been suggested that due to the above reasons, the practice of geoethics requires spreading of more awareness. This can be attained through certain strategies as conceptualised for the concept. Although new and not fully developed, it has gained strength through the establishment of the International Association for Promoting Geoethics (IAPG) in 2012. As mentioned components in Fig. 3., ethical values are suggested to be followed in the form of the Singapore Statement on Research Integrity in which an oath like the Hippocratic Oath called the 'Geoethical Promise' and codes of practice as is visible in the codes of ethics and principles of the International Association for Promoting Geoethics (IAPG). Honesty, awareness, cooperation, fairness are some examples to follow ethical values as suggested by the promoters. For ensuing social values, geosciences are forwarded to play an essential part for the society facing immense challenges. Sustainability, geo-education and prevention are some key methods in this. Cultural values have strength in leading towards a better way of current and future thinking. Geoparks and geo tourism are such examples. Responsibility is the main method in achieving this, with penalties on failure. These penalties can be in the form of loss of reasoning as being geoscientists; geoscientists should be trained in this. The Geoethical Promise has been inducted in the 'Cape Town Statement on Geoethics' in 2017 (di Capua et al., 2017). The aims suggested for carrying out geoethics include:

- Increasing integrity of geo scientists
- Spreading scientific culture with people's participation
- Creating fresh socio-economic models
- Protecting life on earth

These can be accomplished through the following defined tools:

- Ethical codes of conduct in geology
- Best practices guidelines for best practices and sustainability
- Protocols for action between geoscientists and people
- Legal responsibility framework
- Ease of access to data use
- Continuous and authoritative help of geoscientists to politicians and policy makers
- Ensuring media support
- Knowledge exchange and transfer
- Supporting innovations
- Recognition to peculiarity
- Tools for geoeducation
- Groups and networking
- Research activities (Peppoloni and di Capua, 2015)

Practically, it is observed that ethics, denotology and life sciences have been quite successful in developing such approaches. Presently, the concept has gained acceptance by earth and social science disciplines (Martínez-Frías et al., 2011). It is also gaining popularity (Limaye, 2015). The moral aspects of geography are being emphasised in the current context (Lynn, 2000). Ethics has been gaining popularity in these discourses. The Association of American Geographers (AAG) has organisations for ethics and the creation of moral geographies is an outcome of this. However, the development of moral geographies is recent (Lynn, 2000).

The second part of the paper deals with extending and observing geoethics in India. This attempt is both historical and contemporary and tries to check how the propositions of the issue can be outlined in Indian philosophy. Are they really new for the country as are highlighted for the world? Besides, how the contemporary aspects being practiced in the country? It is important to outline here that the following analysis is not reflective of any religious views but broadly of the Indian philosophy. Further, the current analysis tends to filter the concerns regarding geoethics from Indian philosophical discussions. The further discussion is outlined in the following points:

1. Ethics and individual in Indian philosophy-Some scholars find it conflicting to directly observe and etymologically define what is 'ethics' in Indian philosophy when compared to its western counterpart. But the best synonym to indicate ethics in Indian philosophy is 'dharma'. This is to indicate morality, conduct and the right and wrong in day to day life (Ranganathan,

2007). This is supported by Ashoka's ideology of 'dharma' and Manu's explanation of 'dharma' as abstention, purity, and morality. The main explanation behind 'dharma' is from the verbal root 'dhr', which means 'to support'. One of the other explanations is from the Vedic concept of *RTA*, which although has no etymological relation with the word 'dharma', but it translates to 'Truth, Law, Right, Order'(Ranganathan, 2007). A central viewpoint of this philosophical thought can be seen in the concepts of the 'brahman' and the 'atman' indicating the highest source of everything and atman as the self in everyone (Mohanty, 2000). Next, faith in the concept that an external moral order prevails, is an important determinant in leading to the fact that human beings have to bear consequences of their actions and a better future is feasible only upon the acceptance of this fact. Free will and personal efforts are important determinants in this direction. Also significant is the fact that self control is a necessity to improve actions. Besides, all Indian thinkers unanimously agree upon efforts in the right direction ('abhyasa'). They have also emphasised upon the 'self' as spirit or 'atman' to indicate it as the most valuable thing in humans (Chatterjee & Datta, 2011). In the Upanishads, the unity of all is mentioned and is asserted in place of individual identities. The soul is God and represents unity. Thus when mentioned 'sarvaṃkhalvidaṃ brahma nehanānāstikiṃcana ||', the concern is to suggest that this whole world is Brahma (Chatterjee & Datta, 2011). Ethics and morality as per the Indian philosophy relate to the fact that morality has to be applicable in real life situations and to respect the existence of the other.(Gupta, 2012). Now, approaching systematically, a few observations can be forwarded.

**TABLE 1. A SYSTEMATIC OUTLINE OF INDIAN PHILOSOPHICAL CONCEPTS**

<b>Term</b>	<b>Explanation</b>
Philosophy	"Philia", "Sophia"-Etymological explanation relates it to love of wisdom
'Darsana'	Indian counterpart of the term philosophy, indicates basically the Western counterpart of philosophy- 'drs'- 'to see' or 'way of seeing' but also 'critical examination' (in Sanskrit) and 'dithi' in Pali as 'point of view'.
'anviksiki'	Tends to explain the critical study of data with perception and as also in the way explained by scriptures
'karma'	The much discussed concept deals with action. With roots in Sanskrit as 'kr'- to do; it is the fundamental of human existence. It signifies an action with implications. 'Karma' can be done ethically or non-ethically and the results will be in the same direction. This alters and draws the ultimate for an individual in this life and after. This ideology underlies many other dimensions of Indian philosophy.
'prakṛti', 'nisarga', 'padārtha',	Indicate nature and include both natural elements and human beings

**Source- Author, 2022 (from Gupta, 2012).**

The Indian philosophical thought is observed to be in nine categories as per the 'darsana' as: 'Charvaka', Buddhist, Jain, 'Sankhya', 'Yoga', 'Nyaya', 'Vaisesika', 'Mimansa' and 'Vedanta'. Each has their own premises and intellectual contribution but all indicate a recognition of the



individual and the benefit of humanity in totality. This leads to the much discussed concept of 'VasudhaivaKutumbakam'. This indicate an inclusiveness aspect with the realisation that all humanity has evolved from one source and this is the basic reality of life (Gupta, 2012). The causal effects of events are widely discussed in western philosophy as well (Gupta, 2012). Each 'darsana' has a systematic follow up which is a reflector of the 'proofs' upon which it is based.

2. Geo- thinking and geo- ethics- While it is interesting to say that geography does not have much role to play in the determination of Indian philosophical ideas(Gupta, 2012), it can be emphatically mentioned that ethics in Indian philosophical thought relate to norms and righteousness but also duties. This relates to the concept of 'Sittlichkeit' or ethical order or ethical life as indicated by Hegel or Kant's 'moralitat' (Carritt, 1936). Taking these to geography and geoethics, it can be clearly said that both have their distinct identities (Lynn, 2000). With its base in ethical concepts, geoethics aims at a flexible transformation of ethics to suit the current contexts (Lynn, 2000)although this can be taken as a source of criticism as well. Geoethics is termed as an 'earth centric' approach(Lynn, 2000). While ethical concerns are broadly observed in the STEM disciplines, Earth studies can draw heavily from the emergence of geoethicsfor guidance in acting responsibly towards the Earth. Earth scientists will get a clear direction from it(Mogk & Bruckner, 2020). Mogk and Bruckner tend to identify two components of geoethics as- micro ethics and macro ethics (Mogk & Bruckner, 2020). Professional concerns of geoethics are said to be reliant upon trust, respect, justice and equality (Mogk & Bruckner, 2020). This approach is more relevant and related to concerns related to earth as discussed in geography as a discipline (Abel & Varet, 2007). A combination of geo- centred issues with ethics in the current context can be of multiple kinds. One can have ample relevant focal areas which can be outlined in this regard. Some geographical issues can be mentioned as that of inequality in resource distribution, resource depletion, disasters, biodiversity loss, and others. Ethical issues which are widely discussed in this regard can be highlighted as equity, conservation, rights, sustainability, sustainable development, awareness and many others (Abel & Varet, 2007). These issues need no specific introduction. Particularly in the light of climate change, global warming and the current environmental problems, one always requires workable solutions in which geo ethics can be of help. But what is most important in this regard is to device the methodology and practical application of the concept. The last part of this paper tends to highlight the recent followings of the concept and how the Indian philosophical thoughts can be of direct help.

3. Contemporary observations, Indian philosophy for Earth Science disciplines and geoethics- Geography is defined as an exceptional subject in helping out with issues such as gender disparity (Thornbush, 2016). The International Association of Geoethicsand the International Association for the Promotion of Geoethics can be cited as pertinent examples in this regard(IAGETH, 2022,IAPG, 2022).So, when Isha Upanishad mentions-

ईशावास्यमिदं सर्वं यत्किञ्च जगत्यां जगत्।

तेन त्यक्तेन भुञ्जीथा मा गृधः कस्यस्विद्धनम् ॥

It indicates that everything is occupied by the Supreme lord and that one should not eye upon other's resources (NA, 2022). The Upanishads also mention that plants and animals are divine and all elements of nature have soul. This is termed as eco-philosophy by Arne Naess. Human beings in Upanishads are responsible for healing themselves and then the environment (Sreevidya, 2017). Nature has a more depth as just providing resources to human beings. The Upanishadic thought also focusses that instead of relating with one's ego, human beings should

relate to nature. In fact, human beings can't separate themselves from nature and every element in nature is connected in a mysterious way. To lead a life of simplicity and resources in a manner that they don't get depleted are also principal ideas that are forwarded in the Upanishads. The oblations offered to natural resources are indicating as one of the methods of controlling pollution which even modern day scientists are contemplating (Sreevidya, 2017). The Taaittiriya Upanishad highlights methods to keep the environment clean. The Isavasya Upanishad mentions the problem arising out of human greed which the current world is facing. It also mentions of negative externalities arising out of human exploitation of the environment (Sreevidya, 2017). The Vedic sages recognised the importance of a clean environment in :

"मधु वाता ऋतायते मधु क्षरन्ति सिन्धवः । माध्वीर्नः सन्त्वोषधीः ॥  
मधु वाता ऋतायते मधु क्षरन्ति सिन्धवः । माध्वीर्नः सन्त्वोषधीः ॥"

(Rigveda 1.90.6) It is one of the most sacred verse of the Rigveda emphasising that the rivers, winds, herbs, heavens, trees, sun and heaven be sweet to us and spread bliss.

"भूमिरापोऽनलो वायुः खं मनो बुद्धिरेव च  
अहङ्कार इतीयं मे भिन्ना प्रकृतिरष्टधा ॥"

(SrimadBhagvata 7.4.)

Earth, water, fire, air and sky are the five 'mahabhutas' and the intellect and ego all convert to nature.

"पर्यावरणनाशेन नश्यन्ति सर्वजन्तवः ।

पवनः दृष्टतां याति प्रकृतिविकृतायते ॥"

Pollution destroys the environment and

"भुक्त्वा यान्ति च पञ्चत्वं, दुष्प्लास्टिकमजैविकम् ।

पशवोऽनुर्वरा भूमिर्जायते ज्वालिते विषम् ॥"

the Earth produces only poison then. So,

"संरक्षेत् दूषितो न स्याल्लोकः मानवजीवनम् ।

न कोऽपि कस्यचिद् नाशं, कुर्यादर्थस्य सिद्धये ॥"

human beings should not pollute or harm nature in any form and should neither destroy the Earth for monetary benefits (Bhuvan, 2022).

"पुमान् पुमांसं परिपातु विश्वतः।"

( Rigveda 6.75.14)

May human beings protect other human beings from all sides.

"असतो मा सद्गमय ।

तमसो मा ज्योतिर्गमय ।

मृत्योर्माऽमृतं गमय ॥"

(Brihadaranyaka Upanishad 1.3.28)

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Prayer to take from darkness to light.

“धर्मं चर। धर्मान्न प्रमदितव्यम्।”

To practice righteousness.

(Taittiriya Upanishad 11.1)

"उद्धानं ते पुरुष नावयानम् ।"

(Atharvaveda 8.1.6)

May human beings rise and not fall.

Examples from philosophical schools can be given with regards to the same. For instance, the Nyaya- Vaishesika school encompasses nature and human beings as a part of ‘padartha’. ‘Padarthas’ can be classified as substance, quality, motion, universal, individuator and inherence (Baindur, 2015). They recognise the earth as a system and are working internationally to promote ethics in consumption and distribution besides working upon mitigation (IAGETH, 2022). Dr. Abdul Kalam mentioned that ancient India was a ‘knowledge society’ which contributed a lot to the human civilisation (Sreevidya, 2017). The works in this direction are interdisciplinary in nature (IAGETH, 2022). In the light of COVID-19, the relevance of such concepts has risen more significantly (Peppoloni & di Capua, 2021). Of recent, one can mention of the country’s presidency of G-20 nations, which the Prime Minister is focussing upon to be based upon ‘vasudhaiva kutumbakam’ concept (Desk, 2022). It can be clearly said that the environment needs a renewed focus from humanity for its own survival.

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