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Traditional Knowledge, Challenges and the Need for Revival

By

Ramachandra N U
Assistant Professor, Dept. of Sanskrit, School of Sciences B-II, JAIN (Deemed-to-be University)
Email: nu.ramachandra@jainuniversity.ac.in

Abstract

India is a land embedded with rich traditional knowledge. People of this country with their indigenous knowledge could comprehend the complexities of life and use to find the timely solutions best possible. They had an innovate approach to address the challenges in different forms of life. The contribution of our country through traditional knowledge system (TKS) is immense to the world. A country with at least 5000 years of history should have definitely existed and continued with great wisdom of understanding the life. Works of Dharamapal depict the knowledge system, which prevailed in India before the Europeans invasion. Dharamapal into "Indian Science & Technology of eighteenth century" with the statistical approach explains the education system which prevailed until recent times of 1750s, which later were crumbled because of westernization. It is our responsibility to look into the ancient knowledge treasure, revive and safeguard the same for our future generations and for the global wellbeing.

Keywords: Traditional Knowledge, Ayurveda, Ancient system.

1. Introduction

To learn about the Indian system of traditional knowledge we should look into the ancient literature available. Undoubtedly, we should start from the Vedic texts and its adoptions for different customs of life. Vedic texts have the references of mathematical procedures, Ayurveda, importance of agriculture and food, water, social responsibility and other essentials of life science can be found. These vedas have six organs termed as vedangas. They are;

"shiksha vyakaranam chandaha niruktam jyoutisham tatha

Kaplasceti shadangaani vedasyahurmanneeshiNaha"

- Shiksha – Phonetics
- Vyakaranam – Grammar
- Chandas – Prosody
- Niruktam – Etymology
- Jyotisham- Astronomy
- Kalpa - Sacred precept to perform ceremonies

Later on, from these Vedic sources different branches of knowledge developed with applications.

For instance, in aryabhatiyam of Aryabhata (of 4th century C.E) systematization of Indian astronomy can be found. The calculations to find the true and mean positions of planets can be found in this test. Aryabhata also explains about solar and lunar eclipses. After Aryabhata, we can see Brahmagupta (b.598 AD), Varahamihira (d.578 AD), Bhaskara and so on till 17th century carried on with this tradition.

In the field of medicine, we have the rich texts "Sushruta Samhita" and "Charaka Samhita". Rhinoplasty or Nasa sandhana is explained like the following;

A leaf may be utilized for measuring an area of nose, which will be hidden. The skin shall then be divided by the living skin for cheek & turned back to protect the nose, departure a thin pedicle devoted to the cheek. By cutting the nasal stump with a knife, the portion of the nose to which the skin will be attached should be rendered raw. The physician should then put the skin on the nose and quickly sew the two pieces together, keeping the skin properly elevated by inserting two castor-oil plant tubes in the position of the nostrils, ensuring that the new nose has the correct shape. After the skin has been properly adjusted, it should be sprinkled with liquorice, red sandalwood, and barberry plant powder. Lastly, cotton should be utilized for protecting it, & clean sesame oil shall be added for a regular basis. If the nose is very short or very long after the skin has join & grounded, the centre of the flap shall be unglued & an effort done for expanding or shortening it (Manubolu et al., 2018).

Sage Sushruta has described other surgeries and treatment of many injuries. Few of them are listed below;

1.1. Surgeries:

- Karna Sandhan – otoplasty
- Lekhya - scarification
- Esya - exploration
- Vsraya - evacuation
- Oshtha Sandhan – lobuloplasty
- Sivya – suturing
- Vedhya – puncturing
- Ahrya - extraction
- Nasa Sandhan – rhinoplasty
- Chedya –excision.

1.2. Injuries:

- Kshata - Uneven injuries with signs of both Chinna and Bhinna, i.e., laceration
- Ghrsta - Superficial abrasion of the skin
- Bhinna - Deep injury to some hollow region by a long piercing object
- Pichchita - Crushed injury due to a fall or blow
- Chinna - Complete severance of a part or whole of a limb
- Viddha Prana - Puncturing a structure without a hollow (Jin et al., 2007).
- To quote one more example we can look into grammar – vyakaranam.

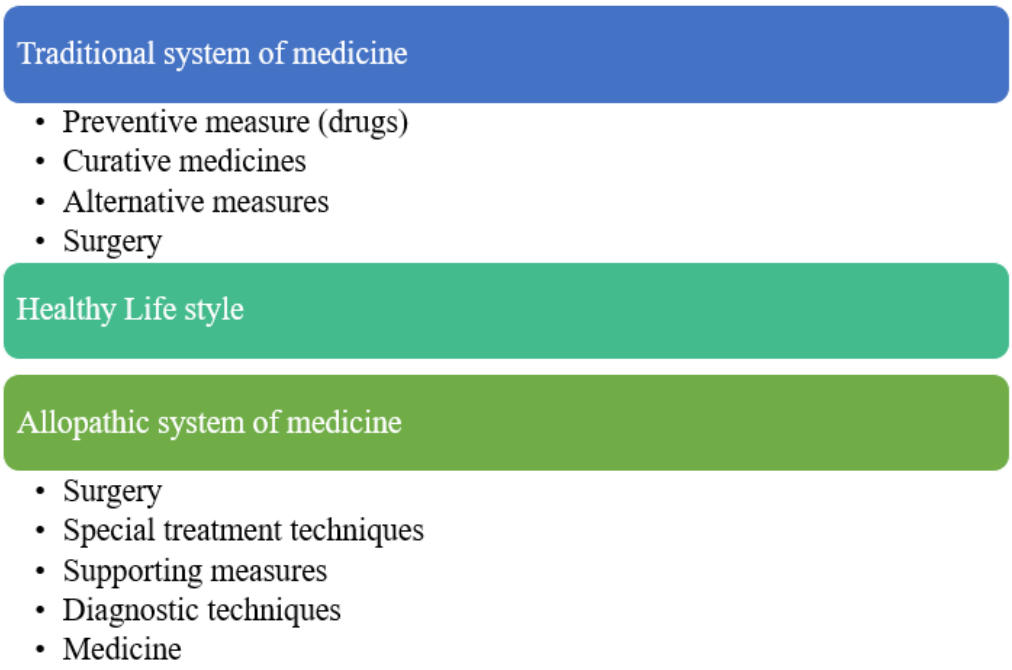

Figure 1: Rrequirements in Life to Achieve Collective & Valuable Lifestyle

In rural & remote zones, conventional medicines, particularly herbal medicines, play a significant part for maintaining fitness. Incorporating conventional herbal medicine into therapeutic practices would aid in the accomplishment of the objective of "wellbeing for all" is better understood by the Figure 1 (Sen & Chakraborty, 2017).

In India, there has been consistent policies for supporting the promotion in conventional medicines. The administration too supports several research & development plans inside the zone of clinical plant research. Over the year, the overheads allocations for the Department of AYUSH has progressively enlarged. Numerous suggestions have been established for an objective of assimilating the AYUSH structure into the healthcare systems-

- AYUSH professionals are being utilizes in national reproductive and child health and population stabilisation programmes.
- Bal Rasayana, Ayush Ghutti, Ark Ajwain, Soubhagya Shunthi, Ksheerbala Tel, Punarnavadi Mandoor, & Ark Pudina have been comprised in the National Reproductive & Child Health (RCH) Programmes for utilization through mother & infant.
- The pilot projects for assessing an effectiveness of Ayurvedic therapies in prenatal & postnatal treatment.
- ISM services are being used in a rural health care mission (NRHM). Appointing Ayurveda doctors and paramedics in primary healthcare and national health services, for example.
- Inclusion of AYUSH drug (i.e. Punarnavadi mandoor for treatment of anaemia during pregnancy) kit of ASHA (ASHA or Accredited Social Health Activist serve as an intermediary between the community and the public health system in rural India) at sub-centre/primary health centre/community health centre in addition to generic drugs for common ailments.
- Ensure that Ayurvedic, Siddha, and Unani basic drugs are available in primary health centres.
- To figure out how to incorporate AYUSH medicine into programmes like Janani Suraksha Yojana (JSY-AYUSH), ICDS-AYUSH, Reproductive Child Health (RCH), early breastfeeding, child growth tracking, pre- and post-natal treatment, and so on. And determine their efficacy (Sen & Chakraborty, 2017).

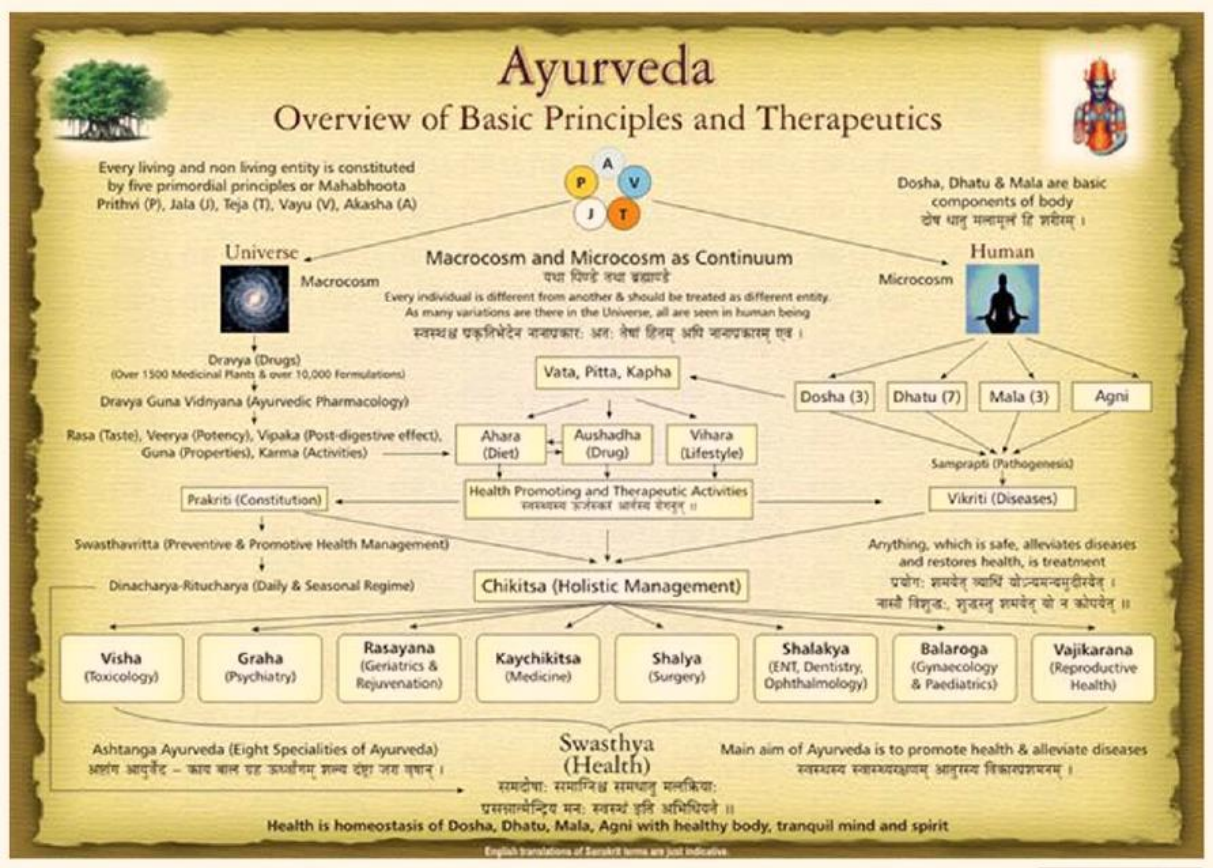

Figure 2: A Summary of Principal and Therapeutics in Ayurveda

Ayurveda is among of the worlds' oldest & majorly well-documented fitness system and is better described in Figure 2. Drug discovery founded over conventional information is a significant step for the development of novel medicines. Inside reverse pharmacology, formulations are exposed oriented on known therapeutic encounter & experimental finding obtained by a sequence of test. Conventional knowledge-oriented reverse pharmacology emphasises over reversing routines 'laboratory-to-clinic' manufacturing to 'clinics-to-laboratories.' The significance of security remains supreme, & an effectiveness become the request for verification. This process is tremendously supportive for locating better & safer leads (Patwardhan & Mashelkar, 2009).

2. Literature Review

Panini's grammar for Sanskrit is considered as the ancient text of grammar to refer back. Aṣṭādhyāyī (The 8th Chapter) Linguistic dissertation provided that the creation of right form of Sanskrit; foundational texts from Pāṇinian School, composed inside sūtras ("aphorism"). Panini's time is considered to be of 5th Century B.C. In Panini's work ashtadhyayi which consists of nearly 4000 sutras we can find references of earlier sages like Gargya, Shakalya etc. However this work occupies a prominent position as the sage Panini was blessed by lord Shiva with fourteen major formulae (shivasutra - jala) on which the chapters are constructed in a systematic order. The order of formulae is constructed in a derivational method, meaning the previous sutra is carried to next and so on. This order is followed until the 1st pada (quarter) of 8th chapter thereby the division is sapadasaptadhyayi(7 chapters of with first pada of eighth) and tripadi (three padas of 8th chapter). There are general sutras and sutras applicable to particular cases – apavada sutras. Thus it is very systematically structured.

Next to this text in the grammar is that of Katyayana (of 3rd century C.E). The sage Katyayana in his work discusses about Panini's sutras in the form of vartikas. Vartikas are to address the ambiguities among the sutras. This tread observed in the Mahabhashya of the sage

Pantanjali. In his magnum opus work Patanjali extensively discusses about the validity of the sutras considering both Panini and Katyayana. Interestingly the discussions are in the form of question answers and arguments. This methodology itself provokes the thought process in accepting or rejecting the statement with proper substantiation. The contribution of these sages is immense in the field of grammar. Thus it is called trimuni vyakaranam (grammar by these three sages) (Jin et al., 2007).

Vakyapadiyam of Bhartruhari (of 5th Century C.E) is the next landmark in the field if grammar. This texts speaks about the sentences, philosophy & words of language rules. Candra of fifth cent. Anno Domini composed Cāndravyākaraṇa ("Candras' Language rules"). Jayāditya-Vāmana of 7th cent. C.E., Authored Kāśikāvṛtti ("Benares' Gloss") which is a completed successive explanation for Pāṇinians' sutra. Kaiyaṭa eleventh cent. C.E. wrote Pradīpa ("A Lamp of Great Commentary") which is tcompletes explanation about Patañjalis' Mahābhāṣya. Śaraṇadevas twelfth century. C.E. Durghaṭavṛtti (A gloss about word which are tough to make) is explanation over a partion of Pāṇinian'nds sutra. Nāgeśa of 17th to 18th century C.E. wrote Paramalaghumañjūṣā (Too Light Basket), works over semantic & philosophy about language rules Paribhāṣenduśekhara ("Paribhāṣā's Moon-Crested") which is again an explanation over a Pāṇinian grouping for meta-rules. We can even see the 'siddhanta koumudi'- simplification of ashtadhyayi into different "prakaranas", by Bhattoji dikshitar, a Sanskrit grammarian of Maharashtra. 'Balamnorama' the commentary for this work is given by Sri Vasudeva dikshitar following the lineage (Jin et al., 2007).

From the above illustrations it is evident that the traditional system prevailed from the ancient times which continued till late 18th century.

In the collection of Dharamapal's writings, about Indian Science and technology, discussions about the major documents are found in the said topic. Most of the foreigners who invaded India were attracted by the exiting knowledge system. People travelling from different places also started advocating the knowledge to their home states. To quote an example "Inoculation about small pox", the British ambassador's wife in Turkey got her child inoculated and later on introduced it into Britain. With the quest of widening the knowledge horizon the travelers started engaging in submitting the knowledge system to their respective patrons. From the works of Dharmapal, with a close observation we can find the chronology of references by the foreign authors who have recorded the indigenous knowledge system which were in practice during 18th century. Thus the traditional knowledge system travelled from the subcontinent to other parts of the world (Dharampal, 1971).

In present times we start measuring the standard of lifestyle comparing with the west. The sophisticated lifestyle has become the norm. The adoption of science and technology from the west is considered to the standard practice as well. To discuss with an example, referring to the talks of 'Cluade Alvares – an Indian environmentalist influenced by the works of Dharmapal', we can say that Ayurveda has its own advantages over allopathic medicines. Most of the drugs prescribed are tranquilizers and many are with some side effects. If a person is to consume more and more drugs for a long tenure, certainly it will result in adverse effect. In Ayurveda instead of just addressing the part affected, medicine will be prescribed considering the entire body. The food habits – *bhojan – hita- mita- ritu bhuk* i.e taste, quantity and seasonal food as diet practice will make the person healthy with enough immunity strength (Jin et al., 2007). The collective works of Dharmpal will provide an insight about the immense knowledge, which was existing, and live even during 18th and early 19th century as well. During his stay in London he was very keen to know and study about the Indo-British relation on different parameters such as education, polity etc. He started spending his time and Indian office and British Museum to collect the data preserved. Most of the Europeans during colonialism at different capacities had visited India. They had registered the then education

system and traditional knowledge. Later he developed an association with sevagram along with Sahasrabudhe.

During colonialism, referring to the works of Dharamapal we can understand that the education system had to undergo a drastic change from its traditional method in accordance with the requirement of the British. The wisdom of the ancient India was taken by the British. Even few philosophical schools such as Buddhism originated in India but flourished better in other states. Why were Indians not able to safeguard and sustain with the traditional knowledge in the same way which was prevailing earlier? During the times of freedom struggle under the leadership of Mahatma Gandhi and others majority of the population was involved in nation making. The political exploitation also damaged the cultural practices and later it was forgotten to the extent that we started believing in the western thoughts not only for the facts but also for their assumptions (Jin et al., 2007).

J.K Bajaj in his work on 'Near to Non- Western Viewpoint of Scientific's Knowledge' (BAJAJ, 2011) argues that a modern science is considered to be of Value-free theory assumption. Historiography in science has decreased to just list for a modern science achievement. He expresses his concern that a philosophy for science was decreased to group of attempts for finding an epistemological criterion. Hence if the assumptions are so made then the assignment for philosophy and science sociology becomes decreased to mere delivering self-consistent's theory, which emphasize a real assumption for a advance science value-free theories from which the reality is being explained. On a keen observation of Bajaj's article, we can understand the challenges faced by the historians in recording the facts. The job of the historians was to catalogue the facts based on the consideration of modern science assumptions. However, the modern scientists could trace the scientific theories in other cultures. These theories were ignored if they were theoretical. To quote an example the ancient Indian medicine system even though it was working and it had flourished still it was ignored as it did not fit into the definition of modern science. Even the Chinese medicine system was ignored as it was not identical with the western-liberal culture which has become a norm of modern science. If we observe the statement "There seem each reason for exploring at what distance & to which way scientific understanding was accustomed through their communal milieu" (by Mulkey) – demands us to explore the factors that dominate the acceptance of scientific achievements.

Francis Bacon, who was normally considered initial philosophers for industrial societies, in *Novum Organum* expresses his view about the modern science. He says modern science should have two essential components; 'firstly, studying the nature & men like the elements of natural surroundings & secondly, understanding for controlling for not regarding like mere humanoid acquisitions then it should be an unconditional truth for nature & man, like the transcripts for a mind in whoever shaped an earth.

However the domination of the west can be observed in the different definitions of modern science. Then what forms the essential components of knowledge system? Technology essentially should involve purposeful application of scientific knowledge to promote vhu7man welfare. It should not be with reductionist approach. An orientation with an inclusive approach towards the world is necessary which should focus to cater the need. This application should also be absorbed into the nature. For instance we can see one such scientific approach in Indian Ayurveda. The therapy is advised with whatever is available in the environment[5]. The texts of Indian Ayurveda refer to the study and gathering the data from the world. The study systematizes its use in the therapy. Such system was and is prevailing in India from centuries. Interestingly we can observe that this is different from the present day definition of modern science.

> *"The Ayurvedic attitude toward theoretical formulations appears to be one feature that clearly distinguishes Ayurveda from Western science. The texts make it clear that truth*

always belongs to the concrete particular in the Ayurvedic view of knowledge and fact, and that all theoretical generalisations are cataloguing the instruments for apprehending and systematising the concrete particular" – J.K Bajaj[11]

Above statement explains the required nature and the application of the knowledge. Science should not end its application to meet some pre-assumed ideas and goals. Different cultural traditions have their specific knowledge systems. With the due considerations and respect ancient knowledge should be understood and applied[5].

3. Discussion

In ancient India the purpose of life was given more importance. There was division of responsibilities advised as prabhu Samhita – the Vedas. Being righteous is taught as the major principle of life. We can see this in Buddhism and other philosophies as well. People were engaged in the pursuit of understanding the reality –the ultimate truth. From the Upanishad texts we can refer to statements such as *tamaso ma jyotirgamaya* - with the message 'let us travel from darkness towards light'.

With the local wisdom people in India use to find the solutions for different challenges that they use to face. In many aspects of life may be farming, medicine, other scientific approaches, people with their wisdom used to address the problems.

3.1. Challenges faced in the revival of traditional knowledge system.

In the international seminar on Innovation, Sustainability and Development, which was organized in 2011, Prof. Navjyoti Singh said that traditional knowledge system has humanity embedded within.

He explains about the formation of Patriotic & People Oriented Science and Technology (PPST). This was formed by few young professional scientists in the pursuit of traditional knowledge system. They started working on modern science vis-à-vis Indian indigenous knowledge system. With different time frames they started investigating substantially about the ancient traditional system, nature of indigenous scientific approach during early 18th century, during colonial era and post independent India. They started to research on tradition knowledge of India in different fields such as Agriculture, medicine, art forms, housing etc. Voluntary research on traditional knowledge was being published as PPST Bulletin. This continued for many years. He says that the knowledge which was known to people was not taught in the universities.

With the idea of having constructive work, a platform for the discussion was created in which the living traditions in the form of artisans, weavers, etc. could come and present their discourse and discussions.

In the anticipation of knowledge exchange first congress of traditional science and technology was held at IIT Bombay, in 1993. Professor Navjyoti Singh explains saying that this was economically supported by the banks rather than the state. Next congress was held in the year 1995 in the Anna University. In this many modern people entered who were working on different projects such as agriculture, health, metallurgy etc. being funded by the government. The objective of this congress was to recognize communities of ancient knowledge system and bring them all to a common platform. This effort of the congress made the society to get to known different communities of people. But the difficulty faced was that the leadership of different communities were by and large not agreeing for this. In the third congress which was formed in 1998, in Varanasi. The focus was on the local market rather than community. In the next congress in the year 1999, Bundelkand was the region which largely

participated. Agricultural practices, local industries etc. were presented in this congress which was very specific to the region. The fifth congress was specific about the weavers.

In the above information by the professor Navjyoti Singh it's evident that criticism about the modern knowledge system is good but to move from critic to construction and bringing awareness we need to invent the way of approach. Every community has their own concerns and needs. Strong leadership and urge for reinstating is another challenge within the people. Support from the state is required. Political hegemony may mislead the core intention of the people. When modern science is providing the quick and timely solutions for the people it's difficult to convince and understand its long term effects. Unless established and practiced many may not encourage the traditional system.

3.2. Need for revival

It is true that the people in the ancient times were rich in indigenous knowledge. Later on due to foreign influence the life style of the people has changed. Traditional knowledge methods are to be adopted to have better innovative techniques. In the fields of education and agriculture a revolutionary change is required. The basic learning approach in the education system has to be reinstated to understand the purpose of life. The richness in the traditional knowledge will be lost if we do not carry it to further generations. India has already witnessed such losses due to colonial rule. It becomes the responsibility of us to protect and transmit the value system to our future generation.

Constitution of India also mentions that it's the responsibility of the state to promote the cottage 's business inside rural zones are among the responsibilities for the State as per Article number 43 under directive principles of state policy.

Capitalism which has encroached into different dimensions of life has deprived the mankind from the purpose of life. May be seeds, fertilizers etc. are marketed and sold for profits than for the purpose. Are we really trying to address the problems through the modern technology? Why should not the traditional knowledge also be adopted? Are we trying to find just timely solutions?

It is required for us to analyze and adopt our present day technology on necessity perspective.

4. Conclusion

In ancient India the purpose of life was given more importance. There was division of responsibilities advised as prabhu Samhita – the Vedas. Being righteous is taught as the major principle of life. We can see this in Buddhism and other philosophies as well. With the local wisdom people in India use to find the solutions for different challenges that they use to face. In many aspects of life may be farming, medicine, other scientific approaches, people with their wisdom used to address the problems. The professor Navjyoti Singh it's evident that criticism about the modern knowledge system is good but to move from critic to construction and bringing awareness we need to invent the way of approach. Every community has their own concerns and needs. Strong leadership and urge for reinstating is another challenge within the people. Support from the state is required. Political hegemony may mislead the core intention of the people. When modern science is providing the quick and timely solutions for the people it's difficult to convince and understand its long term effects. Unless established and practiced many may not encourage the traditional system. Constitution of India also mentions that it's the responsibility of the state to promote the cottage's business inside rural zones are among of the obligation for State as per Article number 43 under directive principles of state policy. Capitalism which has encroached into different dimensions of life has deprived the mankind from the purpose of life. May be seeds, fertilizers etc. are marketed and sold for profits

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