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Situational analysis and future directions of AYUSH: An assessment through 5-year plans of India

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ABSTRACT

AYUSH is an acronym for Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy. These are the six indigenous systems of medicine practiced in India. A department called Department of Indian System of medicine was created in March 1995 and renamed to AYUSH in November 2003 with a focus to provide increased attention for the development of these systems. Very recently, in 2014, a separate ministry was created under the union Government of India, which is headed by a minister of state. Planning regarding these systems of medicine was a part of 5-year planning process since 1951. Since then many developments have happened in this sector albeit the system was struggling with a great degree of uncertainty at the time of 1st 5-year plan. A progressive path of development could be observed since the first to the 12th 5-year plan. It was up to the 7th plan the growth was little sluggish and from 8th plan onward the growth took its pace and several innovative development processes could be observed thereafter. The system is gradually progressing ahead with a vision to be a globally accepted system, as envisaged in 11th 5-year plan. Currently, AYUSH system is a part of mainstream health system implemented under National Rural Health Mission (NRHM). NRHM came into play in 2005 but implemented at ground level in 2006 and introduced the scheme of "Mainstreaming of AYUSH and revitalization of local health traditions" to strengthen public health services. This scheme is currently in operation in its second phase, since 1st April 2012, with the 12th 5-year plan. The scheme was primarily brought in to operation with three important objectives; choice of treatment system to the patients, strengthen facility functionally and strengthen the implementation of national health programmes, however, in some places it seems to be a forced medical pluralism owing to a top-down approach by the union government without considerable involvement of the concerned community. In this study, the 5-year planning documents have been reviewed, from the 1st plan to 12th plan, to enable reflection and throw some light into the future directions of AYUSH system.

KEY WORDS: Ancient medical manuscripts, Indian systems of medicine, Indian systems of medicine informatics, mainstreaming of Ayurveda, Yoga and Naturopathy, Unani, Sidha and Homeopathy, medical tourism

INTRODUCTION

AYUSH is an abbreviation for Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy. These are the six Indian systems of medicine (ISM) prevalent and practiced in India and in few neighboring Asian countries. A department called Department of ISM was created in March 1995 [1,2]and renamed to AYUSH in November 2003 [3] with an objective to provide augmented attention for the expansion of these systems. However history unearths that AYUSH system is filled with many ups and downs since its traditional form of ISM to its present form of AYUSH. Western medicine dominated the ISM during the period of British rule in spite of the strength and public faith on these systems of medicine. It was in the year 1835, these systems faced the nadir when Lord Macaulay settled the controversy over whether government should support indigenous or western learning. He ordered that western knowledge should be exclusively fostered in all areas governed by East India Company. Subsequently, eastern medical wisdom was actively discouraged, and the western medicine was recognized as the only legitimate system of medicine to be followed [2]. The current situation is obviously not the same as it was during the British rule. The latest developments in the sector of AYUSH are many, such as mainstreaming of AYUSH and revitalization of local health traditions, inception of many national level institutions such as All India Institute of Ayurveda and above all creation of a separate ministry under the union Government of India [4,5]. Similarly, many programs have been initiated by the Central Government and are implemented at a different level. Moreover, India is a land known for pluralistic system of healthcare with the firm presence of allopathic system of medicine.

Post-independence Indian economy has been based on the concept of planning. This has been carried out on the basis of

a long-term planning process known as 5-year planning. The 5-year plans in India are developed, executed, and monitored by the planning commission [6]. The planning commission is chaired by the prime minister of India and a nominated deputy chairman who enjoys the rank of a cabinet minister. The 1st 5-year plan was launched in 1951 and two subsequent 5-year plans were formulated until 1965. 5-year planning could not take place during 1966-1969 owing to Indo-Pakistani War and other humanitarian crisis such as drought, devaluation of the currency, a general rise in prices and erosion of resources. During this period, three successive annual plans were made and subsequently the 4th 5-year plans was launched in 1969. Since the 1st 5-year plan, health sector has been an integral part of planning process. Health sector planning is one among the 13 sectors identified by Government of India for planning until the 12th 5-year plan. AYUSH sector forms the part of health sector planning [6]. Since the 1st 5-year plan, the sector started appearing under the sector of health planning.

At the time of 1st 5-year plan, a great deal of uncertainty was prevailing regarding the position and future course of development of indigenous system of medicine. Planning pertaining to indigenous system of medicine took place from its nascent stage owing to its very raw status during that period. However, it was felt that the controversy with regard to the truths and merits of any particular system of medicine can only be settled on the benchmark of research. Scientifically designed investigations will, in the course of time, decide the value and validity of different techniques and those which can justify their existence will necessarily become the part of the integrated system of medicine [7].

There are a number of areas where strategies and recommendations are available in 5-year plan documents, but this brief review focused broadly on situational analysis and future directions of AYUSH. In this review, the acronyms ISM and homeopathy (ISM and H) and AYUSH have been used interchangeably owing to their reference during different 5-year plans.

SITUATIONAL ANALYSIS

Current Situation

The ministry of AYUSH, Government of India, released a detailed status of AYUSH system as on 1st April 2014. Few important statistics is represented below in a tabular form [Table 1] for quick reference as per the need of this article [1].

AYUSH Situation during Each 5-Year Plan

While reviewing the 5-year plans, a progressive path of development could be observed. It was up to the 7th plan the growth was little sluggish and from the 8th plan onward the growth took its pace and several innovative development processes could be observed thereafter. Important policy prescriptions, strategies and events in each 5-year plan from 1st 5-year plan to 12th 5-year plan are described in Table 2 following a brief analysis from the 7th plan to 11th plan. Delineation regarding 1st plan to the 6th plan is only tabulated in Table 2.

At the beginning of the 7th plan there were 4.5 lakhs practitioners of indigenous medicine serving in rural areas of different states in India. They were working in far-flung rural areas where they were enjoying acceptance and privilege of doing so [8]. After a similar phase in the 8th 5-year plan, the system was in a position which could be measured on the basis of its strengths and weaknesses at the beginning of the 9th 5-year plan. The strengths during that period could be measured by the number of AYUSH practitioners serving in remote rural areas/urban slums which accounted more than 6 lakhs of such practitioners. Similarly, the weaknesses were also of great concern. It included lack of qualified teachers along with poor quality training standards in training institutes. There were lack of essential staff, infrastructure, and diagnostic facilities in secondary and tertiary care institutions. Potential of AYUSH drugs and therapeutic modalities were not fully exploited, and the existing AYUSH practitioners were not fully utilized to improve access to health care [9].

It was after the 9th 5-year plan a detailed mention of different segments of AYUSH was found in the planning documents. The principal approaches in the 9th 5-year plan were to improve the quality of primary, secondary and tertiary care in AYUSH. It included investment in human resource development for AYUSH to bring marked improvement in the quality of services rendered by these practitioners. In addition, it focused on preservation, promotion and cultivation of medicinal plants and herbs and completion of the pharmacopoeia for all systems of AYUSH. It focused on drawing up a list of essential drugs belonging to these systems and encouraged good manufacturing practices (GMP) to ensure quality control of drugs. Most importantly 9th 5-year plan promoted research and development a therapeutic trial of especially on new drug formulation, therapeutic trial of potential drugs through strengthening of the central research councils and coordination with other research agencies. Special emphasis was laid on encouraging research

Table 1: Current status of AYUSH in India as on 1st April 2014

Components	Ayurveda	Yoga and naturopathy	Unani	Sidha	Homeopathy	Total
Number of practitioners	399400	1764	47683	8173	279518	736538
AYUSH hospitals	2838	42 (7+35)	257	265	213	3615
Bed strength	43170	1107 (85+1022)	3379	2305	6834	56805
Dispensaries	15153	214 (138+76)	1289	845	7199	24700
UG colleges	260	18	41	8	186	513
PG colleges	100	-	9	3	39	151

Source: Ministry of AYUSH, Government of India, UG: Under-graduate, PG: Post-graduate

Table 2: Events/policy prescriptions during each 5-year plan

5-year plans	Duration	Important events/strategies/policy prescriptions	References
1st	1951-1956	ISM and H was a part of health and family welfare planning process	[7]
2nd	1956-1961	Budgetary allocation was increased from 37.5 lakhs to 1 crore in the center and 5.5 crore in states	[26]
3rd	1961-1966	A 4 years diploma course in Ayurveda was introduced with the blend of both traditional and modern medicine	[27]
4th	1969-1974	Budgetary allocation still increased to 15.83 crores	[28]
5th	1974-1979	Reiteration of the 4th 5 year plan strategies. Central councils were formed, CCIM in 1970 and CCH in 1973	[29]
6th	1980-1985	Coordinated efforts for the management of communicable and non-communicable diseases with the help of ISM&H drugs were proposed	[30]
7th	1985-1990	Proposals were made to utilize ISM&H practitioners in family welfare, MCH and UIP programs as they serve in far-flung rural areas with a great degree of acceptance	[8]
8th	1992-1997	Integration of ISM&H with modern medicine in health care services was envisioned	[9]
9th	1998-2002	Creation of para-professionals in ISM&H was proposed. Mainstreaming of AYUSH and revitalization of local health traditions was proposed	[10]
10th	2002-2007	Inclusion of ISM&H in all levels of heath care, accreditation system of ISM&H education, zero base budgeting was introduced	[11]
11th	2007-2012	Strengthening professional education, strategic research programs, promotion of best clinical practice, technology up gradation in industry, setting internationally acceptable pharmacopoeial standards, conserving medicinal flora, fauna and metals, Utilization of AYUSH workforces in national health programs were important strategies	[31]
12th	2012-2017	Availability of AYUSH services in 100% of districts through NABH accredited hospitals, Improving quality of education and training and developing Centers of excellence in government and private sectors, promoting quality research to validate the efficacy and safety of AYUSH remedies, ensuring availability and conservation of medicinal plants, accelerating pharmacopeial work, ensuring availability of quality drugs, positioning AYUSH national institutes as leaders in SAARC region, propagation of AYUSH for global acceptance as systems of medicine are the ongoing 12th 5-year plan strategies	[32]

CCIM: Central Council of Indian Medicine, ISM and H: Indian systems of medicine and homeopathy, MCH: Maternal and Child Health, NABH: National Accreditation Board for Hospitals and Healthcare providers, R & D: Research and Development, SAARC: South Asia Association for Regional Cooperation, UG: Under-graduate, UIP: Universal Immunization Programme, AYUSH: Ayurveda, Yoga and Naturopathy, Unani, Sidha and Homeopathy, CCH: Central Council of Homeopathy

aimed at improving AYUSH inputs in national health programs during 9th 5-year plan [10].

During the 10th 5-year plan, it was felt that despite all the efforts the AYUSH systems have not realized their full potential because the existing AYUSH systems at all such as primary, secondary and tertiary level health care institutions lack essential staff, infrastructure, facilities and drugs. At the same time, the potential of AYUSH drugs and therapeutic modalities has not been fully exploited. There was a lack of quality control and GMP resulting in the use of spurious and substandard drugs. The quality of AYUSH practitioners has been below par; many AYUSH colleges lack essential facilities, qualified teachers and hospitals for practical training. There was also no system for continued medical education (CME) for periodic updating of knowledge and skills during the 10th plan period. It was also found that the AYUSH practitioners were not involved in national disease control programs or family welfare programs. Medicinal plants have been over-exploited and as a result, the cost of AYUSH drugs has increased and spurious products were getting into the market [11].

The vision statement of 11th 5-year plan was very appealing as the same mentions about mainstreaming of AYUSH by designing strategic intervention for wider utilization of AYUSH both domestically and internationally. National Rural Health Mission (NRHM) came into play in 2005 but implemented at ground level in 2006 and introduced the concept of "Mainstreaming of AYUSH and Revitalization of Local Health Traditions" to strengthen public health services [4,12,13]. Under the broader umbrella of mainstreaming of AYUSH and revitalization of local health traditions AYUSH facilities have been co-located with 331 (44.3%) District Hospitals (DH), 1885 (36.3%) Community Health Centers (CHC), and 8461 (34.6%) Primary Health Centers (PHC) by 31st April 2014. Similarly, 2.61, 0.46 and 0.1 million of rural population were being served per DH, CHC, and PHC, respectively, in the country in 2014. Contractual appointment of 10933 AYUSH Doctors and 5419 AYUSH Paramedical staff has been recorded by this time. Uttar Pradesh ranked top (1829 appointments) in the contractual appointment of AYUSH Doctors followed by states of Bihar and Odisha that accounts for 1384 and 1316 appointments, respectively. Likewise, 5419 contractual appointments of AYUSH Paramedical Staffs were recorded by 31st March 2014. A maximum of 1584 paramedical staffs were appointed in the state of Andhra Pradesh, followed by Uttar Pradesh, Madhya Pradesh, Tamil Nadu, Uttarakhand and Rajasthan that appointed 733, 526, 475 413 and 401 paramedical staffs respectively. Arunachal Pradesh, Delhi, Goa, Madhya Pradesh, West Bengal and Daman Diu are the only five States and one Union Territory (UT) where there are no contractual appointments of AYUSH Doctor. There were 11 States and UTs where no AYUSH Paramedical staffs were appointed on a contractual basis as on 31st March 2014 that includes Arunachal Pradesh, Assam, Bihar, Delhi, Gujarat, Himachal Pradesh, Mizoram, Nagaland, West Bengal, D and N Haveli and Daman and Diu [14]. The Figures 1 and 2 shows the percentage of contractual appointment of AYUSH doctors and AYUSH paramedical staffs respectively by 31st March 2014 in different Indian states [14].

Albeit the AYUSH doctors have contributed to the equitable distribution of health workforces in rural areas [15] but the system has many implementation problems as per various

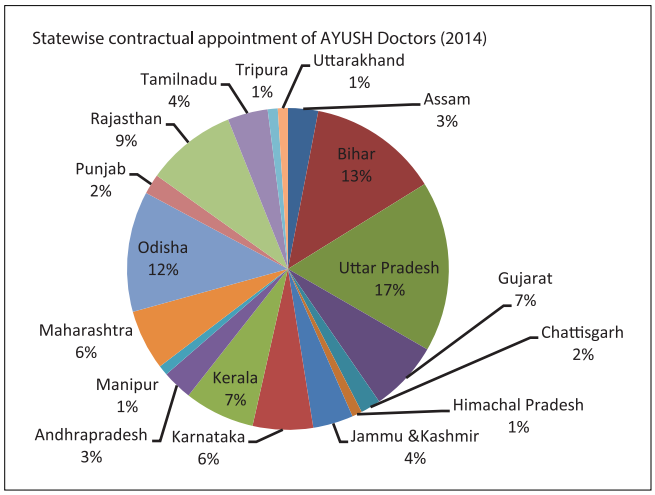

Figure 1: Percentage of contractual appointment of Ayurveda, Yoga and Naturopathy, Unani, Sidha and Homeopathy doctors by 31st March 2014

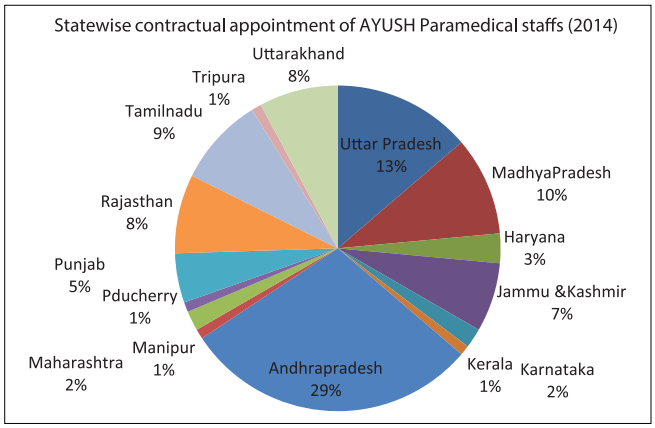

Figure 2: Percentage of contractual appointment of Ayurveda, Yoga and Naturopathy, Unani, Sidha and Homeopathy paramedical staffs by 31st March 2014

studies [16]. At the same time, some of the studies reveal that mainstreaming of AYUSH in some places is perceived as forced medical pluralism as the implementation is a top-down approach without due consideration of local needs [17]. Furthermore, the appointment of AYUSH doctors throughout India is mainly contractual which seriously impacts the motivation level and thereby affects the service delivery. The Planning Commission had recommended provision of contractual recruitment, training, and involvement of human resources for Program Implementation Plans [18]. Studies reveal that security and salary are the two important motivating factors for AYUSH doctors working in CHCs and PHCs [19-21]. Akin to modern medical doctors the AYUSH doctors do not have facilities for CME, which is utmost important for efficient service delivery [22]. There is again the lack of standard clinical guidelines for the AYUSH system which needs to be developed for uniform service delivery. In some places, the placement of AYUSH clinics and OPDs are so located that the signage for AYUSH services is not prominently visible. This spatial marginalization prevails against the operational guidelines for the provision of a separate physician consultation room and a distinct space for storing medicines in the co-located PHCs and CHCs [23]. The deployment of AYUSH doctors for IEC activities rather than specialized services contribute to significant subordination and de- professionalization in the overall health care service delivery [16,24]. Logistics and supply chain management are also a matter of concern as the same affects uninterrupted service delivery.Such delays in supply and erratic replenishment of AYUSH medicines have also been observed in one of the Indian states (Andhra Pradesh) [21]. In addition, studies from Delhi show lack of a robust logistic mechanism with improper indentation, supply and storage of medicines [16]. Moreover, suggestions have been made for integration of modern doctors with AYUSH doctors for utmost patient care [25].

FUTURE DIRECTIONS

Given the present scenario and penetration of AYUSH system in mainstream health care system in India, following are some of the areas in this domain which can be developed, strengthened and augmented for better prospects of this system.

Medical Tourism

India is believed to be the rapidly growing medical tourism destination globally. Low-cost medical care has attracted people from far across the globe. Apart from corporate hospitals attracting patients, India is also known for its rich heritage coupled with its own system of medicine such as Ayurveda and Yoga. These two systems of therapies are very much popular in some of the Indian states especially in Kerala and some of the north Indian states such as Himachal Pradesh, Uttaranchal, etc. Spas, Therapy centers and Beauty salons have attracted a lot of foreign tourists to India. Furthermore, certain therapies are becoming enormously popular and tourists/visitors come to India for such therapies like *Panchkarma* and Yoga. Medical tourism not only popularizes India systems of medicine but also offers better scope for foreign exchange earnings. Little has been done to create a chain of *Panchkarma* Centers and establish centers of excellence for yoga therapy, meditation and teaching. This area can be explored for propagating the Indian medical heritage and improving economy[33].

Ancient Medical Manuscripts

At the present day, a complete catalog of Indian manuscripts is hard to find. These manuscripts are found scattered in oriental libraries and private custody in India and elsewhere in the world. Furthermore, these manuscripts are found in maimed condition with the families of traditional *Vaidyas* and nondescript libraries. Given the condition, urgent remedial measures are required to prevent the irreversible loss of this ancient medical wisdom. Their retrieval is important to preserve these ancient medical doctrines which would provide a wealth of knowledge and thrust to research and clinical application [2]. Sporadically, attempts have been made by few organizations to treasure this medical bequest. The initiatives by the Institute of Trans-Disciplinary

Health Sciences and Technology (Previously known as Institute of Ayurveda and Integrative Medicine), Bengaluru, India with its Center for ISM informatics and Theoretical Foundations are laudable. It was started in 1995 to give increased focus for the modernization of ISM to bring enhanced access for a variety of research purposes. A number of CDs have been prepared by this organization on the medicinal plants on various ISM including Ayurveda, Sidha, Unani, and Homeopathy. The center for development of advanced computing, Pune, India which is a premier research and development (R and D) organization under Government of India is also contributing to this field of knowledge. A software, AyuSoft, has been prepared by this organization on various functionalities of Ayurveda [34].

Research in ISM

ISM is the ethnic legacy deeply buried in the cultural belief of Indian population. Some of the treatment procedures, therapies and drugs of ISM have unbroken traditions of acceptance and practice and have been practiced over centuries. Hence, it is not always desirable to validate these practices on modern scientific parameters. The need for fundamental, clinical and therapeutic research in ISM can hardly be over emphasized. Users demand the evidence of safety and efficacy of these systems of medicine owing to the present day focus on evidence-based medicine. For the last 40 years, research councils have been conducting research, yet a lot remains to be done. The major problem with the research in the realm of ISM is that it is not up-to-date which needs to keep pace with time [2]. Very often irrational use of herbal drugs has been reported which is an issue of concern that needs to be monitored through governmental efforts, research and development and quality control measures in the realm of ISM drugs [35]. Moreover, the present day approach of evidence-based medical care requires research and development to receive wider acceptance among users.

Research Publication and Access to Information

Research publications in the realm of AYUSH are very poor. Although these days mushrooming of scientific journals are found in the market, but very few meet the required scientific rigor. At present a list of 3 PUBMED indexed journals of Ayurveda, 38 non PUBMED indexed journals, 4 Hindi Ayurveda Journals, 26 Journals of Complementary and Alternative Medicine and 11 magazines of Ayurveda have been documented [34,36]. Except Ayurveda scientific publications in other systems of Indian medicine is negligible. Dedicated journals pertinent to specific system of Indian medicine is hard to find. Homeopathy has one dedicated journal, Indian Journal of Research in Homeopathy, published as an official publication of Central Council of Research in Homeopathy [37]. Scholars of other systems of Indian medicine depend on relevant journals for publication of their scientific work. The total number of scientific publications in different systems of AYUSH until date is 21076 which include 14664, 1396, 2104, 640, and 2272 publications of publications of Ayurveda, Yoga and Naturopathy, Sidha and Homoeopathy respectively [38]. The standard of most of these journals is of great concern. Many of the journals of the Indian medicine are identified as predatory journals by Jeffrey Beall from the University of Colorado [39]. Given the situation, there is an urgent need to create awareness among the scholars of ISM about poor quality journals, training programs on research methods, and scientific drafting skills to the researchers of Indian medicine [40].

Veterinary Medicine

ISM are not reflected merely in the treatment of human beings. Other important dimensions like veterinary medicine are also addressed in detail through these systems [25]. Description regarding the management of various animal pathologies is found in the classical treatises of Ayurveda. This represents a whole new spectrum of knowledge and opportunity. Although sporadic developments are seen in this realm and few pharmaceutical companies are producing formulations for animal diseases but is very little to be counted [2].

ISM Informatics

The present era is aptly called as digital era as computer has immensely influenced human life. The realm of health care is no exception in this case. The field of medical or health informatics is growing very rapidly. However, progress in the field of ISM informatics is not advancing at par with the medical/health informatics. Although ISM informatics is a part of the broader umbrella of health informatics, but the developments specific to ISM informatics is very negligible. Sporadic developments are happening elsewhere in the realm of ISM informatics but is not at the desired pace. Akin to health informatics, ISM informatics is a specialized field which is a judicious mix of the principles of India systems of medicine and information technology. ISM informatics would be a paradigm shift to bring automated applications in the field of clinical medicine, biomedical research or information storage and retrieval. The urgent need for the development of ISM informatics is also accrued to the wider acceptance of these systems of medicine owing to their safe and efficacious therapeutics on many of the human diseases. Another glaring picture is that websites are burgeoning imparting information, education and communication in matters related to ISM. However, the authenticity of these sources is skeptical which needs to be monitored with governmental effort. In addition, there are several novice areas which could be explored and worked out for better access, operation and above all for better utility of I [35]. Given the current growth of Indian system of medicine, Table 3 lists out few areas where future research in ISM informatics can be planned.

CONCLUSION

After independence, when the process of long-term planning was started 5-year plan took its birth and in that all the development and technology sectors started appearing. Since then health and family welfare planning became imperative as a social sector planning. Health has always been given due importance in the planning process owing to its very complex

Table 3: Future research areas of ISM informatics

ISM information storage and retrieval	Electronic medical records
Clinical laboratory information system	Electronic prescriptions for patients
Decision support system for ISM physicians	Health education and information through computers
Hospital information system	Telemedicine
Nursing information system	Computer-assisted ISM drug discovery and development
Dietetic and nutrition information system	Computer-mediated instruction in medicine
	Research databases in ISM system [35]

ISM: Indian Systems of Medicine

nature of affiliation with other sectors of development known as the social determinants of health. ISM, or AYUSH in its present form, became a part of health, and family welfare planning since then. In the entire planning process, the ISM and H have faced lot of criticism and appraisal owing to its various characteristic features. At the very outset, the system struggled with great degree of uncertainty (as described in 1st 5-year plan) and progressed ahead with a vision to be a globally accepted system (as envisaged in 11th 5-year plan). Healthy and positive acceptance of this system requires great degree of determination at Governmental level both at the center and the state. Mainstreaming of AYUSH is currently in operation which opened a window for these systems to become a part of mainstream health care system. Under NRHM AYUSH doctors have contributed to the equitable distribution of health workforce in rural India however the system has many implementation problems as per various studies. It was primarily brought in to operation with three important objectives; choice of the treatment system to the patients, strengthen facility functionally and strengthen the implementation of national health programs, however, in some places it seems to be a forced medical pluralism owing to a top-down approach by the union government. With the new government at the center in India, the planning commission was dissolved and a new organization was set up in 2014, National Institution for Transforming India-Ayog. NITI-Ayog. It stands for National Institution for transforming India-Ayog which replaces planning commission and serves as the Government of India's policy think tank. This organization would function in similar fashion like the planning commission.

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