

Arsenic Tragedy in Bangladesh: Looking through the Indigenous Perspective of Hymenochemothrapy

Abdur Razzaque*
Saydia Gulrukh**

Introduction

In this writing our concern is paired. The fundamental initiative is to analyze arsenic disaster in Bangladesh as a current phenomenon generating health hazard for the rural population of our country. One of us is a practicing modhu chikitsak - Hymenochemothrapist. Hymenochemothrapy is a knowledge system of health and disease not only treats the patient but also seeks the answer of the question- in which process indigenous intelligentsia of healing system of this region¹ got defeated. Thus, this piece of writing also contributes in introducing Hymenochemothrapy in the academia. Moreover, the discussion neighboring this two issue proposes an appropriate technology of manufacturing medicine in the natural pharmacy-the beehives.

Conquering Indigenous Medicines: Hymenochemothrapy in the Age of Medical Pluralism

During the initial phase of colonial rule in India the indigenous system of knowledge and cultural practices regarding disease and cure came under severe strain. The essential condition for colonial rule was to identify the existing knowledge system, mode of life, cultural heritage of this region as 'unscientific', 'irrational', 'underdeveloped' in this region, which was fundamental in constituting obedience of the native. Western medicine initially introduced for the benefit of Europeans in

* Hymenochemothrapist, Hymenochemothrapy Research Institute, Muktagacha, Mymensingh

** Freelance Researcher

India, especially for protecting the British Army and later made accessible to the Indian population, was a tool of the colonial rule. "It was, as suggested by Roy Macleod, a cultural force, 'acting both as cultural agency and in itself, and as an agency of western expansion' " (cited in KN Pannikar 1995: 147)². Consequently, state initiated the institutionalization of colonial medical science by establishing medical college to train medical practitioner, passed the Bombay Medical Registration Act 1912, trained physicians got the license from the state province, and achieved the legal permit to practice³. Therefore, the practitioners of the indigenous medicine were relegated to an inferior status, as they were unrecognized by the colonial state, and judged unqualified.

The idea common in present days, of different modes of healing (e.g. western medicine / biomedicine as well as various indigenous practices) being simultaneously available to people in the same socio-cultural circumstances (Barnard and Spencer 1996: 613)⁴. According to this idea, it seems that the coexistence of different modes of healing is obvious and equally accepted in the society. For us medical pluralism connotes different social set up, whereas western medical science is commonly believed⁵ to be the most reliable treatment for 'all'. Alongside western medicine permits certain other 'alternative' medicine to co-exists. More precisely, in the age of medical pluralism, which is not distinct from the liberal-pluralist societal motive, modern medical science conquered up on the 'other' healing methods by declaring them inefficient, on the later phase of ruling commercialized all the 'other' healing practices as 'alternative' option/choice for the modern patient. For instance, present inclined popularity in the media for herbal treatment is one example of nullifying the non-western tradition of healing, when the indigenous epitome itself does not exist but a flavor of it is saleable, to be made available some choices for patient. The status of hymenochmotherapy as 'other' medicine constructs the difficulties toward its existence in the society. Firstly, the social pressure of being labeled as impracticable at present time. Secondly, the pressure of validating the success of the indigenous medicine borrowing the language of modern medical science, though hymenochmotherapy rejects it.

Introducing Hymenochemotharapy

Though not established, honey as effective medium of medicine is well introduced in the medical world, by different research results, especially in the treatment of infections, gastroenteritis and stomach ulcers⁶. Medical practitioners claim the anti-bacterial activity of honey since the beginning of 19th century, but not until 1940 more intensive laboratory studies carried out. The remedy in all case found effective. In 1989, an editorial in the journal of the Royal Society of Medicine expressed the opinion that "the time has now come for the conventional medicine to lift the blinds off this 'traditional remedy' and to give it its due recognition." The usage of honey has a vivid history of rejection and reinvention as medicine⁷. That is not our focus.

Unlike others hymenochemotharapy takes in to account honey as effective natural source of remedy. The name of this knowledge system derives from that, as well. The order in which bee belongs to among the grasshopper species is hymenoptera, thus the name of the therapy is hymenochem. Therefore, fundamental ingredient of this therapy is honey and the other by-product of bee like super honey, bee milk, beebread, and royal jelly. Patient takes the therapy in orally and by external use, as well. To introduce hymenochemotharapy we will intensify our discussion in to two main areas. Firstly the context in which this knowledge system has evolved and been growing up. Secondly, the way hymenochemotharapy works as effective healer in human body.

The origin of hymenochemotharpy is from the apiculture work of Hymenochemotharapist Abdur Razzaque in Bangladesh. While doing so, he noticed the indigenous use of honey as medicine. He also observed the method of applying honey as medicine with various ingredients as spices and curry masala, such as garlic paste, mustard oil, onion, black cumin, margosa leaf etc. widely used in the kitchen by women. Through this research of Moubon Medical Apiculture⁸, Abdur Razzaque got acquainted with the community practices regarding disease prevention and cure, which today commonly believed, as lost away by the 'changing nature of society'. Thus, the indigenous knowledge of disease and its remedy works as the basis of hymenochemotharpy. To serve for the prime concern of

hymenochemotherapy-safeguarding indigenous practices, it takes in to account two more questions.

- I. The eradicating effect of colonial intervention, and imposition of European science in indigenous practices regarding disease and its remedy of this region. And the continuing dominance of Western enlightenment in the post-colonial era, even talking about local medical traditions immediately brings on the brunt of being 'backdated' or 'unscientific-minded'⁹. While working, hymenochemotherapy has to take that social pressure of validating 'scientifically' its treatment, along with the above one.
- II. Considering the 'conjugal' venture of the medical science (diagnostic complex, clinics etc), and pharmacy;¹⁰ as nature unfriendly and destructive towards ecological chain, hymenochemotherapy proposes the idea of natural pharmacy.

Concentrating on these issues, question arises how hymenochemotherapy perceives disease and remedy. Hymenochemotherapy does not consider a disease, effecting only a particular part of the body. Thus it rejects the division of human body and the academic sub-disciplines established from that division, such as: gynecology, physiology, orthopedics, psychiatry etc. Rather it perceives human body as an integrated unit where disease is a state when the human immune system malfunctions. The immune system of ones owns body is determined socially¹¹. Hymenochemotherapy rejects this statement of universal human body. Following this statement, disease is a health status when immune system go beyond control, becomes hypersensitive or develops immunity towards contagious disease (Abdur Razzaque 1994:34). On the other hand, health is a status when immunity of human body is balanced and under control. Thus, therapy functions to activate human immune system to cure and prevent¹². Above all, state of immunity in human body is not entirely biological, the status is socially constituted, as well.¹³ Here we will quote from hymenochemotherapy literature, to understand medically how this therapy activate human immune system, being manufactured in the natural pharmacy-

"Working assumption of hymenochemotherapy is that, therapy functions to activate human immune system to cure and prevent

disease. Conceiving this proposition was/is extremely difficult for the medical practitioner with the bio medical perspective. Below we will discuss subsequently 1) methodology- through which this proposition formulated, 2) manufacturing medicine in beehive/honeycomb, 3) affectivity of hymenochem in immunity system.

1) Hymenochemotherapy Research: As an apiarist in the apiary Abdur Razzaque observed the mode of life of bee. On the next stage, while marketing honey he recorded the use of honey among customer from the rural community. Meanwhile continued investigating huge secondary literature on indigenous medicine of this region, along with the substantive writings on apiculture. These background stand for him to invent hymenochemotherapy, and prescribe therapy to the patients. Lastly, the extensive experience of treating patient since last 10 years, the records of the patients, results of the treatment are the continuous source of information, supporting hymenochemotherapy.

2) MouChaks/Beehives as the Natural Pharmacy: Hymenochemotherapy manufactures its most medicines in the beehive or apiary. Thus it proposes an appropriate technology for the medicine industry with limited capital and low cost, for country like Bangladesh without using capital intensive technology and artificial chemicals. In this instance, the natural process of food intake, digestive and excretory system of bee has been incorporated to produce medicine¹⁴. Usually, bee collects their food -pollen of a flower, from the bee plant. But they can intake the liquid from any plant with the same digestive and excretory system. Means, the liquid of leaf, roots, tree bark of any plant, mixing with sugar, bee intake and preserve it in the their hives, and produce honey. Honey produced having this bee feeder will have the characteristics of those trees which they intake from given food. This 'herbal' medicine manufactured in the beehive implementing the natural process of producing honey is not only preserves the features of those trees, also decomposed/ subtract the reactionary components by its excretory system.

3) Affectivity of Hymenochem in Immune System: The chemical component which helps constituting immune system are similarly available in honey and 'herbal' medicine produced from in above mentioned method. These are two types. First, is the nucleic acid, mineral salt, vitamin, coordinating with enzyme and hormone activates DNA, and DNA becomes prepare to encounter the inimical environment. Second, is various protein fractions and chemostatic substance, these elements directly organized immune system. Hymenochem consist of these two types, create passive immunity. Now let us see in the scientific language how this passive immunity helps curing disease. In the case of infection from affected cell, bacteria or virus hymenochem stimulates the phagocytosis process of lymphocytes. Besides, through opsonisation it sensitizes the parasites towards the function of antibody. In case of cancer and tumor if we

use this medicine the reaction will be type six. Means, In coordination with antibody it shows cytotoxic response to the killer cell, and target cell of the WBC. Thus the cancer and tumor cell got destroyed, Antibody dependent cell mediated cytotoxicity (ADCC) happens. In the autoimmune disease some WBC becomes injurious immunity, hyemnochem by destroying those WBC release body from that immunity. For instance of asthma, allergy, axima hyemnochem works as desensitizer, and cures. Worth-mentioning, hyemnochem built passive and natural immunity, so the role of B lymphocyte is prior in it. Unlike thymus period of childhood, when there was no "T" lymphocytes, only the "B" lymphocyte builds natural immunity and hyemnochem works. (Abdur Razzaque 1994: 28-37)¹⁵

Hence, basic difference between the conventional medical science and hymenochemotharpy is in the perception of disease and the diagnosis procedure. In generally it is assumed that the specialization in the field of medical science resolves every mystery of human body to cure disease, but these divisions distract the bodily integrity and uprooted human body from its social legacy. Above all these divisions of human body in to different medical discipline serves the purpose medical industry. In contrast hymenochemothetrapy perceives human body as integrated biological unit, located in his/her own socio historical reality, where disease can not be only a biological phenomena of particular part of body. For instance, arthritis in Bangladesh is prevalent among the middle-class mother generation, if we diagnose the disease only with medical tools, it cannot be cured. The reason behind the prevalence is structured by the gender division of labor, the way they sit in the kitchen for almost all day long bending their legs and spines might strain the nerves of that part of the body. Thus from hymenochemthepeyfs understanding nature of disease is classed and gendered. Declaring the commodication of disease and healing system unethical, hymenochemotherapy practiced and proposes appropriate technology of manufacturing medicine through indigenous method in the natural pharmacy-the mouchaks/beehives, for Bangladesh.

Analysing Arsenicosis, and Arsenic situation in Bangladesh

Since early 90's arsenic disaster became a 'controversial' issue in the health sector of Bangladesh. Though the rural people suffering from arsenicosis, the issue remains 'controversial'. Is Bangladesh affected by arsenic poisoning- 'controversy' was constructed surrounding this question. Because, any agent government or the development institutes,

were not ready to acknowledge arsenicosis as national disaster in Bangladesh. To admit, these agents have to disclose their mistakes of marketing a water technology, not healthy in the long run for the recipient locality. The 'controversy' remain 'controversy' from 1984 to January 1997, until WHO declared the arsenic in drinking water a 'Major Public Health Issue'¹⁶. Meanwhile, people remain unaware of the disease, continues drinking arsenic contaminated water and those suffering from arsenicosis passed the early stages (melanosis) and developed skin cancers or gangrene. Hymenochemotherapy takes into account this 'controversy' while diagnosing the extent of arsenic disaster in Bangladesh. In generally we notice extent of arsenicosis by counting the 'head' of the patient, hymenochemotherapy diagnosed a decade long 'controversy' among the 'key stakeholders' as the producer of the massive nature of arsenic poisoning in Bangladesh. Hymenochemotherapy conceives the entire modernizing process as a determinant factor in diagnosing arsenicosis, whatsoever it is effecting mode of life.

Rural People are in Slow Poisoning : The use of arsenic as a deadly poison has been known since long year's back. After winning the war of Waterloo, the British force reportedly used arsenic to kill French Emperor Napoleon Bonaparte who was in exile at St. Helena Island. After his death on May 5, 1821, it was announced that Napoleon died in stomach cancer. But many people thought that the Englishman applied slow poisoning to kill Napoleon. The British people denied the allegation. But after many years, the hair of the French emperor, reserved at museum, was tested, and it was proved that he was killed by poison and the name of poison is arsenic. Arsenic was found in Napoleon's hair 13 times more than normal level. (Dhaka Community Hospital 1996:18)

Recent surveys showed about 70 million people of the country are living under the risk of arsenic poisoning as the ground water of a vast region is contaminated with arsenic¹⁷. According to the Dhaka Community Hospital survey 58 districts are arsenic contaminated among the 64 districts of Bangladesh¹⁸. Studies indicate that 1 in 10 people who regularly drink arsenic-contaminated water may ultimately die from cancer¹⁹. Since 1970 when various international development agencies²⁰ introduced tube well as intermediate water technology in the

market rural people get acquainted with this technology and started drinking tube well water. After thirty years of extensive use of tube well in Bangladesh government is celebrating that, it has successfully provided safe water to 97 percent²¹ people of this country through popularizing tube well. But this 97 percent success is causing arsenicosis and becomes the name of thousand deaths in rural Bangladesh. Tube well water is now poisoned with arsenic and people are drinking this water everyday.

Changes in Agricultural Production and Food Habits : Excessive intake of arsenic in body causes arsenicosis. Visible symptom of this disease is skin manifestations. The invisible but significant symptom is the cardiac disorder and malfunctions in peripheral nervous system for which capillary vessel got compressed. Since last century unlike arsenicosis there are two more disease with skin manifestation: leprosy and burgees in the population of surrounding terrestrial equator area are prevalent. The reason behind this prevalence is, sun gives light here diagonally. Where people get rough sunlight, complexity in respect to melanin is obvious. Then why this disease is prevalent only in this century?

The basic feature of the land of Bangladesh is sedimentary rock-type¹⁹, which naturally contains a significant amount of arsenic water. The inhabitants of this land were inherently used to with this level of arsenic water. If that is so, the question we mentioned earlier comes again in front: why this disease is prevalent only in this century?

The food habit had contributed in this bodily tolerance. In the terrestrial equator area, where sunlight reflects diagonally as in Bangladesh, available crops, vegetable and the fruits are different from the cold country. In this geographical region volatile oil in lemon like fruits or in mustard is acute. To balance the effect of rough sunlight in the body metabolism, the volatile from lemon like fruits and mustard oil has immense role.

In the last two decade drastic change has occurred in our natural food habits. According to hygienochemotherapy the major one, which causes disorder in the usual body metabolism of this region, is the rejection of mustard oil. 'Mustard oil has cholesterol; special toxin from it may cause heart disease' this scientific propaganda disregarded the value of

mustard oil as an agricultural commodity. Then the farmers of this region no more found mustard as profit making good, the cultivation of mustard oil decreased. The volatile from the mustard oil helps human body to develop melanocytes. There is a popular practice in mostly our village locality - mother rubbing the body of the newly born children with mustard oil and put them in the sun light for a while. Vitamin A and D from mustard oil keeps the cells strong of children and aged people. On the other hand the volatile oil from lemon like fruits keeps the peripheral nerve alive and helps expanding the capillary vessels. In our food habit, we used to mix some drops of lemon for our taste. This practice still exists, but no more the local lemons but the hybrid one, which does not have the same level of volatility. The local lemons like fruits such as jambura-shaddock, deshi komola-indigenous orange and deshi lebu-lemon, jantihori etc are no more available in the market. The plantation of expensive trees, which can be sold in the market to manufacture furniture, stopped the idea of planting indigenous fruits. Modernizing process in the villages shifted people from dug well to tube well, indigenous agriculture to high yielding agricultural system, which inevitably changed the food habit. This social transformation towards modernization is a determining factor while understanding arsenic disaster in Bangladesh.

Excessive intake of Arsenic in Human body-Arsenicosis : Above discussion states that excessive intake of arsenic causes arsenicosis. In Bangladesh the people are bound to intake arsenic mainly from the drinking water sources, as the drinking water sources of the pre-tubewell era (i.e.; ponds, dug well, rainwater harvesting etc), either not functioning or not suitable to drink (as our ponds turns into fish factory where pesticide and other chemical ingredients invested for profit). And the natural bodily tolerance to be developed from the usual food habit supervised by the natural ecology, replaced by the 'imposed' food habit, thus destroyed the bodily tolerance of the people of this region.

Medical science says, presence of excessive arsenic in human body creates this harmful effects such as, skin abnormalities, irritation in digestive tract, decrease production of red and white blood cells fetus during pregnancy etc are prevalent. Medical science also says, at the advance stage of toxicity/these effects is difficult to cure but consultation are a must.²² This proposition they made, by perceiving disease as the current state of human body. Hymenochemotherapy considers the biological effects but does not confine diagnosis

procedure in human body rather includes the social set-up, where through the modernizing effort changes in food habit made and bodily tolerance towards this disease destroyed. Destruction of bodily tolerance is invisible in the diagnosis procedure of arsenicosis by the conventional medical science, thus abandoned the possibility of treatment by building up this bodily tolerance. Grasping indigenous perspective understanding arsenicosis and arsenic disaster leaves more room to propose.

Note

□ Dhaka Community Hospital shared their experience and struggles of their Arsenic mitigation initiatives with us. Both of us got the opportunity to know the pain and experiences of the arsenic affected, while working with DCH. In this small note we commenced our solidarity with DCH's struggle and join the demand stop sinking tube-well in villages of Bangladesh. Manosh inspired us to write this article, and put up the partnership of Hymenochemotherapist and anthropologist in to our table. Rahnuma, and Farhana are always being enthusiastic in this writing. We would like to express our gratitude to Manosh, Rahnuma and Farhana.

If this article encourage anyone about this indigenous knowledge system of disease and remedy, hymenochemotherapy research institute is please to discuss more about hymenochemotherapy, natural pharmacy of hymenochemotherapy and the treatment of arsenicosis.

1. When territory is divided in to various nations, then region might not visiblise any geographical space. But here we mention region, which shared the same historical territory, it can be according to the British Indian map, grossly.
2. See, K. N Panikkar, Indigenous Medicine and Cultural Hegemony", in Cultutre, Ideology, Hegemony: Intellectuals, and Social Consciuousness in Colonial India. Tulika, New Delhi, 1995. Page: 146-147.
3. K. N Panikkar, as above, page: 148-149. Also suggested,
 - 1) David Arnold, "Touching the Body : Perspectives on Indian Plague, 1896-1900" in Ranajit Guha edited *Subaltern Studies -V*, Oxford University Press, New Delhi, 1987.
 - 2) দীপেশ চক্রবর্তী, "শরীর, সমাজ ও রাষ্ট্র : ঔপনিবেশিক ভারতে মহামারি জনসংস্কৃতি", আছে গৌতম ভদ্র ও পার্থ চট্টপাধ্যায় সম্পাদিত *নিম্নবর্ণের ইতিহাসসম্মুখে*, আনন্দ পাবলিশার্স, কলকাতা, ১৯৯৮।
4. See, Alan Barnard, Jonathan Spencer edited, Encyclopedia of Social and Cultural Anthrpology, Routledge, Newyork and London, 1996. Page-358-361.

5. Common believes is socially structured. According to science 'women should be pregnant within her age of eighteen to twenty five'. This statement has immense role in the societal declaration of right age of marriage. Accordingly, popular believe is that women should get married within her 25 (especially in South Asia). Thus common believes are linked with social regulation. When we both were discussing 'common acceptance' of western medical science, we discussed the complete cessation towards western knowledge in a west-non west unequal relationship. Question arises why not Ayurved is world-wide accepted? Acceptance is a political process. see, মানস চৌধুরী এবং সায়দিয়া গুলমুখ, এইডস ও যৌনতা নিয়ে ডিসকোর্স, রূপান্তর প্রকাশনা, ঢাকা-২০০০।
6. For example, the current research into antibacterial activity of honeys being carried out at Waikato University under the direction of Dr. Peter Molan. A priority at the present time is to provide scientific evidence of the effectiveness and safety of using honey as an alternative to conventional forms of treatment for skin and gastro-intestinal infections in the medical field and mastitis wounds and scours in the veterinary fields. We have numerous reports both scientific papers and personal communications, of honey being used successfully to treat ulcer, bedsores, wounds, burns and dermatitis which were not responding to usual methods for treatment, but it has proven difficult to convince those in the medical veterinary professions that honey is a safe effective remedy to use. See,
 - A. Peter Molan, Honey For the treatment of Infections, <http://www.ohwy.com/or/w/wchoneys.htm>
 - B. P.Molan, "The role of honey in the management of wounds", Journal of Wound Care 8 (8) 423-426, 1999.
 - C. P.Molan, " Why honey is effective as a medicine: Its use in modern medicine" Bee World 80(2) 80-92,1999.
7. Peter Molan, as above.
8. See, আব্দুর রাজ্জাক, হাইমেনোকেমোথেরাপি গবেষণা, কেন্দ্র, আব্দুল্লাহ, পাবলিশার্স, সেপ্টেম্বর ও ১৯৯৪।
9. See, Manosh Chowdhury and Saydia Gulrukh as above.
10. We consider influence and control of the huge industry (national and multi national) of medicine to the medical science and practitioner.
11. See, আব্দুর রাজ্জাক, as above.
12. See, আব্দুর রাজ্জাক, as above.
13. See, আব্দুর রাজ্জাক, as above.
14. See, আব্দুর রাজ্জাক, as above.
15. See, আব্দুর রাজ্জাক, as above. Also suggested,
 ১. আব্দুর রাজ্জাক, "মৌমাছির ভেনম ও মানব দেহ", মাসিক গণস্বাস্থ্য, ৭ বর্ষ ১ সংখ্যা, শ্রাবণ, জুলাই-আগস্ট ১৯৮৯।
 ২. আব্দুর রাজ্জাক, "উদ্ভিজ্জ ওষুধ প্রক্রিয়াজাতকরণে মৌমাছির ব্যবহার গণস্বাস্থ্য, ৭ বর্ষ ৩ সংখ্যা, আশ্বিন ১৩৯৬ অক্টোবর ১৯৮৯।
 ৩. আব্দুর রাজ্জাক, "সংক্রমণ উত্তর মানবদেহে জীবাণুর বিরুদ্ধে ইমিউনিটি তৈরীতে এবং এইডস রোগে মৌমাছির ভেনমের সম্ভাব্য প্রয়োগ", মাসিক গণস্বাস্থ্য, ৮-বর্ষ ৬ সংখ্যা আশ্বিন ১৩৯৮।

৪. আব্দুর রাজ্জাক, "লোকালয়ের আশে পাশে মৃতভোজী প্রাণী" এদের স্বভাবঃ মহামারীতে এদেও বিবর্তিত আরচণ," মাসিক গণস্বাস্থ্য, ৮ বর্ষ ৭ সংখ্যা, কার্তিক ১৩৯৮।
৫. আব্দুর রাজ্জাক, "কোষের বিবর্তনে ইমিউনিটির উদ্ভব ও মানবদেহের ইমিউনিটি নিয়ন্ত্রণে মধুর ভূমিকা", মাসিক গণস্বাস্থ্য, ৯ বর্ষ ১১ সংখ্যা, চৈত্র ১৪০০, ফেব্রুয়ারী-মার্চ ৯৪।
৬. আব্দুর রাজ্জাক, "সদৃশ তত্ত্বের আলোকে মৌমাছির কলোনি এবং জীবকোষ," মাসিক গণস্বাস্থ্য, ১০ বর্ষ ২ সংখ্যা, কার্তিক ১৪০১।
৭. আব্দুর রাজ্জাক, "প্রাকৃতিক দুর্যোগ অথবা মহামারীতে পরিবেশদূষণরোধেও এবং দ্রুত ইমিউনিটি মৃতভোজী প্রাণীদেও ভূমিকা : লোকজ ধারণা," মাসিক গণস্বাস্থ্য, ১০ বর্ষ ১২ সংখ্যা, শ্রাবণ কার্তিক ১৪০৩।
৮. আব্দুর রাজ্জাক, ফলের পরাগের এলার্জিক প্রভাব এবং ভিনদেশী গাছের বনায়নে বাংলাদেশে উচ্চমাত্রার জ্বরের প্রকোপ," মাসিক গণস্বাস্থ্য, ২০ বর্ষ ৬ সংখ্যা, আশ্বিন-কার্তিক ১৪০৭, অক্টোবর ২০০০।
16. Cited in, Asa Zaman, "Poison in the Well", in New Internationalist 332, London, March 2001
17. In the case of arsenicosis, government and development planner assumed that diarrhea occurs in Bangladesh because people are drinking unclean water, and made plan to provide clean water to the poor people of this country through tube well, convinced them to distrust there year old water resource dug well as unhygienic.
18. Question comes, how does the ground water of Bangladesh get contaminated, when arsenic is a ubiquitous element being naturally widely distributed in the earth? The answer is related with the 'success' story of tube well in Bangladesh. It is assumed that huge air has been penetrated in to the underground level through tube-wells. When the arsenic minerals comes in to contact of this air, the minerals decomposes, acid released due to this decomposition leaches out arsenic from the minerals.
19. See, Dhaka Community Hospital, Arsenic Problem and Water Source Management in Bangladesh Workshop Papers Abstract, Venue: Dhaka Community Hospital, Dhaka, 14-15 December 1998.
20. Asa Zaman, "Poison in the Well", in New Internationalist 332, London, March 2001.
21. Tube well was introduced in Bangladesh to decrease diarrhoea occurrence. But UNICEF has acknowledged that 'the widespread use of tube well drinking water has made almost made no detectable impact on the rates of diarrhoeal disease and parasitic infection.' See Asa Zaman, "Poison in the Well", in New Internationalist 332, London, March 2001.
22. Cited in, Dhaka Community Hospital, Arsenic Pollution in Groundwater of Bangladesh, DCH, November 1997, page: 12. See also, Dhaka Community Hospital বাংলাদেশে আর্সেনিক দুর্যোগ, DCH, 1996. Page: 18.