



THE INTERNATIONAL COURT OF JUSTICE

[Special Agreement Between]

**The Federal Republic of Baati
(Baati National Corporation 'BNC' owned by the State of Baati)**

[Applicant]

And

**The Democratic Republic of Unnat
(Unnat National Corporation 'UNC' owned by the State of Unnat)**

[Respondent]

***Concerning the Differences between States in
Interpretation of Laws and Fulfillment of International Obligations Relating to the
Protection of Bioethics, Human Rights and Dignity from
Conflicts that arose between Parties on
Issues of Science and Technology, Law and Economic Development and with
Special References to Nanoscience and Other Issues***

1. Located in the South Asian hemisphere, the Federal Republic of Baati is a developing country with a population close to one billion. Owing to the emergence of industrialization, privatization, liberalization and globalization, and the increasing role of the World Trade Organization (hereinafter referred as ‘the WTO’), and the World Intellectual Property Organization (hereinafter referred as ‘the WIPO’), the Federal Republic of Baati increased its national focus on economic development in order to sustain the ongoing globalization and fulfill its eager role to become a dominant player in the global-market in all kinds of trade and commercial activities. As a result of this economic agenda the existing Government that came to rule after the recent national election, framed a policy towards public-private-partnership in trade and commerce. The Government invited private industrial houses and entrepreneurs to take part in national economic development through sharing of capital, knowledge and profits. This focus was given not only to the domestic players internally but also for international collaborations from outside. This public-private-partnership policy however retained the Governmental control on policy-matters of production, manufacture, price-fixation, sale, export-import, tax, distribution and other issues of trade and commerce without curtailing the minimum standards of freedom required where contribution is made from private and non-governmental parties. The whole aim of this national focus is to increase shared capital, knowledge-sharing, inclusive growth and sustainable economic development towards a serious concern for safe, stable, prosperous and secured national life and its contribution to global order.

2. The national policy of the Government of Baati was widely publicized both nationally and internationally, presented in international forums, conferences, ministerial meetings, negotiations on pre-bilateral and multilateral agreements with a view to attract Foreign Direct Investments (FDIs) for Federal Republic of Baati. This was one of the promises which the Government of Baati announced in the party manifesto during the election campaign as “*growth by all and development for all*” and, by which the national party won the election with a clear majority. The United Nations Organization appreciated this gesture of the Government of the Federal Republic of Baati in one of its deliberations on “*Process and Procedure on Multilateral Framework for Sustainable Global Economic Development*” where participation from all stakeholders of the society is considered essential for holistic, inclusive and sustainable economic development. This was also seen as a catalyst for fulfillment of Millennium Development Goals of the United Nations Organization. As the result of this the Government invited suggestions and recommendations from all citizens and stakeholders for preparing a comprehensive legal-policy framework whereby it can contribute to national growth, internationalization of trade and commerce, increase its economic development, alleviate poverty, eradicate diseases, promote sustainable development, reduce mortality rates and finally develop global partnerships in key areas of human growth and skills development. This is also seen as creation of employment opportunities that will augment upward social and economic mobility of their citizens and community.

3. The Federal Republic of Baati received many suggestions from citizens and stakeholders of which one core activity to be carried on by the Government were towards identification and development of a life-saving drug for the disease of liver cancer which haunts and afflicts the people of Baati. The medical community which was aware of this alarming health-situation requested the Government to adopt a national policy in the eradication of this dreaded disease through innovation, production and manufacturing of new drugs based on advanced science and technology especially with nanoscience that can be brought into the

country through international collaborations as certain developed countries have advanced knowledge on this new discipline of bio-science and health. Two important factors came into serious national discussion and debate. Funds and technical know-how of nanoscience on developing this new drug have been the major concern as the country Baati, had not yet reached an optimum level to combine and develop both these factors of funds and knowledge indigenously.

4. An international NGO (named 'New Age Life') claimed by a survey report based on its social study conducted in Baati referred that *'one in 4 persons are potentially vulnerable to this [liver] cancer. It [liver cancer] develops and leads to fatality in a period of not more than three to four weeks at its secondary stage irrespective of its detection, diagnosis and treatment. However it is not known whether the cancer can be cured if found at the first stage. The cause of this cancer is unidentifiable except a general and likely indication to chemical agents, carcinogens; new forms of environmental degradation, pollution and other unknown bacteria as well as viruses are feared as potential and possible sources and causes of this [liver] cancer'*. Regular reports and updates on this disease are provided by 'New Age Life' explaining the nature of this disease, its possible causes, speed of growth and its rate of fatality. This report was widely publicized in all national magazines, television channels and awareness programmes by the Government of Baati through discussions and debates where conclusions and understandings on these reports were 'clear, final and alarming'. The medical community, leading oncologists and the research and development departments of the pharmaceutical companies in the country wondered at the obscurity and ambiguity of what they termed as - *'how, when the cause is claimed to be found, its cure is not yet found!'* Few renowned scientists on this discipline of knowledge from advanced countries too agreed to this perception of what they discussed and widely seen as *'only approximation and not yet a truth?'* The Ministry of Health and Welfare and the Department of Pharmacology of the Federal Republic of Baati also agreed with all these viewpoints and findings. However, the Government was positive about the new innovations in science and technology especially based on nanoscience which can bring an end to this threat to life. A Special Committee of Experts was established by the Ministry of Health and Welfare and the Department of Pharmacology under the Ministry to study and assist the Government on this serious health-initiative. They published a report in which Government was highly appreciated for its positive commitment where plan of action was strategically and systematically desired and developed towards eradicating this worst disease affecting the people of Baati. The Government, country, her citizens and all stakeholders hoped for a new scientific breakthrough to take place that will remove the fear and suffering of 1000s of people.

5. The Federal Republic of Baati is a founding member of the United Nations Organization, World Intellectual Property Organization and World Trade Organization. The Government actively participates in all the international forums on economic development whereby it shows its international-friendly pro-development policies and trade interests with international collaborations. The Federal Republic of Baati follows a legal system of common law tradition with equity and public policy in the ascertainment of legal obligations. With interests in international collaborations, the Law Commission of the Republic of Baati has emphasized the need for a clear and concise set of rules in order to avoid vagueness and imbalance for parties from private, international and foreign jurisdictions especially seen in the context of international investment treaties for trade, commerce and protection of global partnerships.

6. The Democratic Republic of Unnat is located in one of the southern peninsulas of Hurasia and is divided from Asia by water bodies of the Hural Mountains, the Rivers of Hural and Husian Seas. It is a small island with abundant biodiversity, rich flora and fauna and, a population of close to 40 million people. The Democratic Republic of Unnat has a unique culture of embracing cosmopolitanism as a result of international

tourism and is currently gearing its efforts to develop new forms of international trade and commerce. The country known for its wide-variety of plants and herbs has taken to all forms of bio-technology development especially in the field of pharmacology in order to bring innovation in the field of medicinal products of life-saving drugs. There have been instances of interests pointing to the study in the field of nanoscience and nanobiology that are seen as a panacea for many ills of the citizens of Unnat and its consequential international trade opportunities across its neighboring states. The distance of the sea-route between the Democratic Republic of Unnat and the Federal Republic of Baati is close to 500 Nautical miles from Baati. Both the states have been using the sea-routes for more than three decades for their inter-state trade and commerce based on bilateral trade and investment agreements. The relationship between the two states is historical, notable and bilateral-friendly to each other fulfilling their economic aspirations towards national growth and development. This bilateral relation is often studied and shown as an example to explain the *Resolution adopted by the General Assembly [Adopted on a Report from the Sixth Committee (A/8082)] 2625 (XXV) – Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States in accordance with the Charter of the United Nations*. The Democratic Republic of Unnat acquired the membership of the United Nations Organization through a long and struggled process from Observer Status in the first phase to final and full membership into the United Nations Organization. They are also parties to World Intellectual Property Organization and World Trade Organization and other specialized international agencies. The Government is republican and democratic with ultimate authority and power derived from diversified ethnic population. The legal system is civil law in nature, though some common law traditions have been cited when legal obligations lack a spirited approach or when ambiguity is troublesome from mere textual interpretations.

7. The trade and development of the Federal Republic of Baati is largely based on production of cotton, wheat, sugar cane, sunflower oil and other industrialized products such as manufacturing of automobile tyres, polythene and plastic products. The trade and development of the Democratic Republic of Unnat is largely based on products that are developed from the rich flora and fauna and, international tourism. The rich biodiversity of the Democratic Republic of Unnat helped them to develop research and development of life-saving drugs from unique plants and herbs that are natural only to their part of the geographical region and water bodies. With the emergence of internationalization and globalization of trade and commerce, World Intellectual Property Organization and World Trade Organization, the respective Governments (Baati and Unnat) entered into various Special Purpose Agreements where production, manufacture, price-fixation, sale, export-import, avoidance of double taxation and distribution of commercial products have been undertaken.

8. One of the Special Purpose Agreements Between Baati National Corporation (owned by the Federal Republic of Baati) and Unnat National Corporation (owned by the Democratic Republic of Unnat) (herein after referred as ‘SPA’ given in Annexure III) was related to innovation, production and manufacturing of life-saving drugs of liver cancer out of small plant by name *Neti* which grows abundantly in the Democratic Republic of Unnat. *Neti* is synonymous with island plants of Unnat. *Neti* requires good amount of water, heat and sun but less care. It is a small plant of not more than 2 feet in height at its peak of growth, gives few flowers but throughout the year, sublime in smell, slender in nature, persisting in life-growth and fine-looking in appearance. It always survives despite the onslaught of heavy rains, sun, heat and floods of the island. *Neti* is a word derived from their indigenous language which etymologically means ‘all, everything, absolute’. There have been tales and folklores about this as wonder herb as a result of its curing properties for all kinds of diseases of the liver. However, this herb never received any serious or important attention from the Unnatian community though everyone knew about it as a matter of knowledge from the traditions. *Neti* was not known until recently a leading herbologist Professor Mruti identified that this plant *Neti* has a

potential cure for liver cancer which haunts its neighboring and friendly state, Baati. Professor Mruti claimed in his independent study in his own laboratory that the juice from the leaves of *Neti* when compressed, its molecules taken, then broken and reduced to infinitesimal sizes, its intensity, potential and effectivity of cure of liver diseases especially liver cancer raises to unmanageable, immeasurable and even alarming proportions and propensities. It is also widely believed in Unnat that the presence of these herbs purifies the air and hence, the reason for the increased average span of life of people in Unnat when compared to other countries. Professor Mruti contributed a presentation in one of the international forums of 'Life-saving Drugs, Traditional Knowledge and Scientific Application' in the context of liver cancer where the Professor Mruti explained and elicited interest among the audience to develop an innovative scientific technology to make the best use of this plant and its herb in order to help and save millions of lives that are afflicted by liver cancer.

9. The World Health Organization (WHO) submitted a report which shows an estimate of close to 80% of the population from Asian and African countries who use herbs as a medicine in preventive health care as pharmaceuticals industries and their products are highly expensive for countries which are growing and, not yet fully developed. The Federal Republic of Baati is one of them and is doubly interested to innovate and develop herbal products in order to cure liver cancer that haunts the Baatian society. The Government of Baati sent a team of experts to the Democratic Republic of Unnat assisted by the Ministry of Commerce and Development from both the Governments to study and submit a report on the invitation of interests and, preparation of investment guidelines to innovate, develop produce and manufacture liver cancer drug based on the idea of Professor Mruti's claim, knowledge and study on the herb of *Neti* and its cure. The team of experts submitted a report with enthusiasm outlining all the possibilities. It was also noted in the report about the finding of the WHO that many pharmaceutical companies currently available use herbal properties in their medicines. According to the finding, close to 25% of drugs that are available in the advanced countries are extracted from herbs. Close to 7,000 medical compounds in the modern pharmacology are derived from herbs. In addition to this, among 120 active compounds are currently isolated from the herbs and widely used in preparation of the modern medicines, 80% show an interesting correlation between the existing therapeutic use and the traditional use of the herbs from which they are derived.

10. In view of this expert report Professor Mruti was invited by the Primate Minister of the Federal Republic of Baati to hold consultations with the medical community, pharmaceutical industrialists and private entrepreneurs who are interested in the public-private-partnership for the production and manufacturing of this life-saving drug for liver cancer. However caution was alerted by few notable social activists as to the scientific and laboratorial veracity of herbs and treatments as alternative medicines other than mainstream medicines. They showed a survey from certain advanced countries that most of the [common to 1000] plant-derived compounds, only few [150 approximately] had actual clinical trials conducted under rigorous standards and scientifically published. According to Cancer Research Studies in USA and UK, it was expressed that currently there is no strong scientific evidence that herbs, alternative and traditional medicines and, remedies can treat, prevent or cure cancer. However it was not clear, whether liver cancer was included in this identification. It was also noted how the National Center for Complementary and Alternative Medicine of the National Institutes of Health in the USA contributes financial resources on clinical trials to bring the effectiveness of herbs and its medicines. As result of these cross and counter opinions the Government of Baati exercised due caution in their approach to see that the money they would spend shall not go in economic drain.

11. Owing to the trade and commercial prospects as well as prompted by the concern to eradicate this life threatening disease, a leading private entrepreneur and an industrial house of a pharmaceutical company

came forward towards establishing private-public-partnership between them and the Government of Baati which then finally led to an establishment of a corporation 'Baati National Corporation'. The Memorandum of Understanding between the private entrepreneur, pharmaceutical company and the Government clearly explained that 'this national corporation as a joint collaboration between private and public-sector undertaking towards innovating and developing a new drug for liver cancer that is afflicting the Baatian community'. It is a corporation of the State and State shall act through the corporation, and the corporation is more than a mere authority of the State. The Government of Unnat also came forward with an establishment of a joint collaboration of this kind in their country and a national corporation was established as 'Unnat National Corporation' which is between a private and public-sector undertaking for innovating, producing and developing a new drug for liver cancer with a view to help the Republic of Baati. It was well known for both the Governments that this collaborative initiative by both the Governments through the establishment of a national corporation is only for the purpose of ending liver cancer through life-saving drug and, hence both the States as parties sincerely commit their Memorandum of Understanding with full cooperation. The Federal Republic of Baati and the Democratic Republic of Unnat consequently entered into a Special Purpose Agreement for this purpose which is given in Annexure III.

12. In consequence of the aforementioned Special Purpose Agreement as given in the Annexure III Baati National Corporation and Unnat National Corporation started the business transactions in various phase-wise operations. The Government of Baati identified one of the places of their own army headquarters to set up an industrial unit and research laboratory whereby the proposed nanomaterial shall be researched, tested, produced and manufactured towards making the required life-saving drug. This life-saving drug for liver cancer is proposed to be in three forms, namely in the form of tablets, through the form of chemotherapy, and through the form of radiation therapy. [Annexure IV – Four Step Formula in the Making of nanoparticles from *Neti*, Annexure V – Methods For Treatment Of Liver Cancer Using *Neti* nanoparticles and *Neti* nanocapsules, Annexure VI – Medicinal Properties Of *Neti* Leaves And *Neti* nanoparticles give details on formula of preparation, its method of cancer-treatment and medicinal properties.

13. A headquarters consisting 450 hectares of land is located on the foothills of the mountain ranges 'Aalay' in Baati and which has a long trail covering close to 3000 kilometers on either side extending to the east and west. A perennial river 'Har' is a trans-boundary river which flows through the nations of Baati and its neighboring States. 'Har' originates from an altitude of 16000 feet on the 'Aalay' mountains and considered special and unique to the biodiversity of Baati. The Aalay mountain ranges are considered significant from the view point of defense strategy, biodiversity and ecosystem which are also indispensable for the neighboring countries. Phase-wise construction and development of industrial and laboratorial requirements of the building and installations have been planned by the Highly Empowered Group and the Task Action Committee of the Government of Baati spearheaded the *Neti* project. This Phase-wise report on the progress and development of the *Neti* project was shared from time to time with the Government of Unnat who reviewed it and appreciated the Baati Government. The Government of Unnat shared all the knowledge of nanoscience that are available in their legal domain with the Government of Baati through a highly secured-document named UNNATI referring to Unnat-National-Neti-Advanced-Transmission of Information (U-N-N-A-T-I). The Baati National Corporation appointed a Scientific Committee who can understand, interpret and elaborate on the information relating to the knowledge of nanoscience as a whole, nanotechnology and nanobiomedicine. This was also shared as *Notes on Understanding* to the Government of Unnat, though they did not participate in every discussion, they just reviewed the same. The highly secured document UNNATI had close to 1500 pages with all information regarding nanoscience, nanotechnology and nanobiomedicine as understood and recorded by the Democratic Republic of Unnat through an expert committee of scientists

who participated in the international conferences representing the Government of Unnat. The document clearly mentioned that the knowledge and information present contain all the processes and procedures for making the nanomaterial from any molecule and compound derived from the herbs of plants. It included detailed study and step by step processes of different concepts involved in the making of nanomolecule and the respective approaches, their method and manner. The Government of Baati carefully studied the information as to the making of the nanomolecule from the herb *Neti* (Annexure IV – Four Step Formula in the Making of nanoparticles from *Neti*). It was presumed by both the parties that the approaches, method and manner as given in the document UNNATI will give the expected outcome. The scientific team analyzed all the documents by which *Neti* leaves can be processed, compressed, its molecules taken, then broken and reduced to infinitesimal sizes through the nanotechnological method and process.

14. 200 kilos of *Neti* leaves neatly packed in a waterproof box along with the necessary documents required to manufacture the drug were sent by the Democratic Republic of Unnat through a special emissary to the Government of Baati. The scientists of Baati National Corporation appointed at the laboratory of Baati received the box. They performed the laboratory procedure exactly as mentioned by Unnat (Annexure IV). The process took place for around 3 weeks. Regular reports based on observations were carried out by noting down all the laboratorial details. All four steps of the formula were meticulously followed, observed, recorded, discussed and verified. At the end of the last step the scientists of Baati National Corporation could successfully manufacture nanoparticles in the required quantity. However there was a surprising turn to the whole laboratorial process. The scientists who were working there along with assistant-staffs observed that many of their team-members who were involved in the manufacture of nanoparticles complained of headache, giddiness and itching of skin. It was immediately discussed and reported to the Government of Baati. The Government of Unnat was also immediately informed. It was found out that this sudden illness could not have happened except as a result of the laboratorial process and testing of *Neti* leaves. A team of medical doctors directed by the Government of Baati who diagnosed all the scientists and the assistant-staffs also concluded that the cause of this illness, namely headache, giddiness and itching of skin could not have happened by any other means except during the time-period of the laboratorial work. There was also a suspicion that how the same symptoms could be seen on all the scientists and lab-assistants suddenly as well as at the same time in everyone. The Government of Baati became little suspicious and appointed a special task-force to verify and cross-check whether the scientists had adhered to all the instructions under Annexure IV without fail, which were given in the UNNATI document sent by the Government of Unnat. They submitted the report to the Government that the scientists did indeed perform all the four steps accurately and without any negligence in the formation of nanoparticles. The results of the manufacturing process as expected and mentioned in the UNNATI document were clearly observed under the nanomicroscope as explained in the scientific document under Annexure IV. Although the scientists of Baati could not investigate the cause of their collective illness, they still completed the project by successfully manufacturing *Neti* nanoparticles. Their next step was then to discard the byproducts of this scientific procedure collected as wastes. They packed the brown coloured solution from which *Neti* nanoparticles were precipitated. The bags were later kept for disposal in the nearby ground separately ear-marked for that purpose. The Government of Baati was interested in experimenting nanoparticles to find out its potential and effectivity to directly act on the cellular level to avoid its proliferation and mutation which can be of help to understand the cure of cancer. It was decided by the Government that Baati National Corporation along with the scientists would go for animal-testing of the nanoparticles. It was decided that the nanoparticle would be tested on rats which are indigenous and available in the mountainous area of Aalay. Few rats were subsequently caught and taken to the lab for testing. The scientists who kept vigilance at all levels observed that within three weeks after they treated rats with nanoparticles, rats showed an unusually irregular and erratic behavior of both rest and

hyperactivity while some of them died as a result of brain hemorrhage. The report based on the observations were noted in full details and submitted to the Government of Baati. The Government of Baati shared the document with the Government of Unnat subsequently.

15. Meanwhile one of the scientists of Baati National Corporation happened to visit the site where the byproduct and the waste collected after the manufacturing process was kept for disposal in one of the ear-marked areas. This was only a temporary arrangement considering that the waste-disposal shall be done according to the international guidelines and standards. The authorities belonging to the Armed Forces informed the Baati National Corporation about the possible effects in case it is adverse. The scientist who was on monitoring the ear-marked area observed a drastic change in that place. Many small and medium-size insects were lying dead on the ground. The grass in that area had also died. Many small plants and shrubs in the nearby location had started withering away. Some leaves of big trees had become pale in colour. Seeing this unusual change in the surroundings the scientist went to investigate the condition of the bags which were kept for disposal and which contained the brown coloured solution. He found to his surprise that many of the bags were torn and leaking which he suspected could have been as a result of either the rains in the previous night or could be something else. The colour of the soil where the bags were found leaking also got changed. The Government of Baati was informed about the effects of the testing of the nanoparticles on rats and also of unusual observations based on environmental changes found on soil, insects, grass and plants. The Government of Baati took into consideration all the observations of the scientists and warned them to take good care while working. The Government once again told the scientists that the Government would readily give all the support and protection that may be required by the scientists to bring success to the nano *Neti* project. The Government of Baati then asked the scientists to repeat the whole laboratory procedure with much more care and diligence by using the remaining half of the *Neti* leaves that were kept reserved by the scientists for further production of nanoparticles. The scientists showed hesitation to carry out the procedure second time. However they undertook the process again as they were guided by the humane consideration to alleviate the liver cancer among the Baatian community. They also took all care and diligence. It was once again observed by all the scientists unanimously of what had happened to them in the last time as to their illness, hazardous effects on rats and surroundings.

16. Meanwhile the Government of Baati applied for the Patent before the Baati Patent Office (BPO) through an Application submitted by the Baati National Corporation for recognizing their *Neti* nanoparticle is new process and invention eligible for patent. Baati claimed as a result of understanding and by their interpretation that they can acquire the patent by themselves. It was noted that the Government of Unnat did not object for the same. . The Patent Office turned down the recognition of patent for the nanoparticle of substance, on the ground that “*a mere discovery of a new form of a known substance which does not result in the enhancement of the known efficacy of that substance or the mere discovery of any new property or new use for a known substance or of the mere use of a known process, machine or apparatus unless such known process results in a new product or employs at least one new reactant*” cannot be considered as an invention eligible for patent. The Government of Baati was shocked to receive this news and discussed with their scientists and expert committee on how to approach this problem and take it further. The legal department of the Government of Baati suggested for an appeal. News and headlines, debates and discussions hit the national and international media and press. The leader of the Opposition in the Federal Republic of Baati parliament launched consistent attacks against the policies and the functioning of the Government of Baati. The Government of Baati subsequently appealed against the decision of the Patent Office in the High Court of Baati which upheld the decision of the Patent Office as correct and valid. The Baati National Corporation through the Government appealed again against the decision of the High Court in the Supreme Court of

Baati. The Supreme Court of Baati after a serious of arguments on either side and based on an expert opinion upheld the decision of the High Court. The Order of the Supreme Court of Baati was a severe blow to the policies of the Government which was going through a phase of serious downfall in the image of their national party. The Supreme Court of Baati observed that 'it is not only a mere discovery of a new form but that substance [nanoparticle] is found or believed to cause harmful effect on the human body, flora and fauna of the surroundings or yet it could it not be proved that the substance is capable of the required effect with which was intended to produce. However the Supreme Court of Baati also remarked that *'such manufacturing of the nanoparticle requires complete knowledge of not only its process of preparation but also its efficacy of output and result as well as its adverse effects'*. *Technology and trade, agreements [Special Purpose Agreement] to transfer knowledge and assistance, bio-safety and wellbeing of mankind from its adverse effects are a matter of serious concern and both the parties (Government of Baati and Unnat) must take extreme precaution in manufacturing. When it comes to pharmaceutical science and its production whether in the form of tablets or for therapies and other methods of treatment of the diseases it a onerous duty on parties that parties owe not just for the satisfaction of the performance of the contract alone and the agreed terms and conditions but also of the duty towards the mankind as a whole where science and technology, ethics and human rights, environment and sustainable economic development play an important role. Considering this and in view of the holistic picture the Government of Baati is requested to take note of this and proceed with a caution and to request the Government of Unnat to share all the knowledge; not only of the benefits of nanoparticle but also its harmful effects if there be in its manufacture.* In spite of this dismissal of the appeal, the Supreme Court of Baati appreciated the noble initiative taken by the Government of Baati and all other stakeholders in dealing with the liver cancer that afflict the Baatian Community which are a matter of grave concern. Both the Governments and the National Corporations held deliberations between them to sort out the differences and the problems as per the terms and conditions of the Special Purpose Agreement. It was argued and dissented by the Government of Baati that the Government of Unnat did not share the knowledge of the adverse effects which are expected from them and presumed as a part of an obligation under the knowledge transfer in the UNNATI document shared by the Government of Unnat. The Government of Unnat claimed that they agreed to share only the knowledge which is there in the legal domain and what was there under their domain was indeed shared and they could not have shared anything other than what was already shared with the Government of Baati. Both the parties argued, agreed and disagreed as to what is involved in the transfer of knowledge especially in the context of scientific knowledge where public policy of a larger legal norm demands knowledge not just from the point of view of theories and abstract but knowledge of mitigation and risk assessment as a part of effective implementation. A theoretical knowledge unless it is substantiated by the practical problems on its accomplishment remain incomplete was the stand taken by the Government of Baati where as Government of Unnat which disagreed with this stand expressed that theory of knowledge is best expressed only within the limitations and cannot be taken to express always its possible dangers. This will defeat the purpose of those who work for knowledge if they are constrained by such larger legal norms. The Government of Baati did not agree to the stand taken by this kind of fast-approach to research in the absence of final and ultimate effects of the knowledge at all levels which is followed through a process and phase-wise approach to research. A plan for Special and Required Assistance was made to the Government of Baati which it refused as the plan required further funding from the Government of Baati which they refused as the country had lots of economic losses as a result of this *Neti* nano project. In spite of the discussions, agreements and disagreements both the parties have decided to refer the matter to the International Court of Justice by invoking the provisions contained in the SPA which gave scope for this settlement of disputes. In spite of the best efforts to solve the problems by peaceful methods, both the parties got convinced this problem and issue be sorted by none other

than International Court of Justice as the court's intervention will be additional inputs and values from member-nations of the United Nations Organization. A joint notification was addressed to the Registrar of the International Court of Justice along with a copy of the Special Agreement to invoke the jurisdiction of the International Court of Justice.

17. The Federal Republic of Baati (Baati National Corporation 'BNC' owned by the State) [Applicant] respectfully requests the Court to adjudge and declare that:

- a. The Democratic Republic of Unnat (through Unnat National Corporation) has violated the following obligations; The basic principle of Article. 2 of the United Nations Charter which reads as follows – *'All Members, in order to ensure to all of them the rights and benefits resulting from membership, shall fulfill in good faith the obligations assumed by them in accordance with the present Charter'*. And that the violation of the basic principle of Article. 2 of the United Nations Charter as a result of deliberate withholding of the information on adverse effects of the nanoparticle which amounts to manifestation of mala-fide intention; as a result of which Government of Baati could not acquire the patent before the respective office.
- b. The Democratic Republic of Unnat (through Unnat National Corporation) had willfully concealed the information of harm to human life, environment and ecosystem which were well within knowledge of the Government of Unnat and thereby violated the international obligations and principles of Universal Declaration on Human Genome and Human Rights, International Declaration on Human Genetic Data and Universal Declaration on Bioethics and Human Rights;
- c. The Democratic Republic of Unnat (through Unnat National Corporation) is responsible for frustrating all the terms and conditions of the Special Purpose Agreement entered on 1st January 2014 between the Federal Republic of Baati and the Democratic Republic of Unnat;
- d. The Democratic Republic of Unnat (Unnat National Corporation) shall repay all the losses of money that Government of Baati incurred in planning, execution and arrangements together with interests and, considering the state of disturbance and interruption to the growth and development of trade and commerce to the Federal Republic of Baati being a developing country; that the cost-computation will be a subject matter of special agreement later to be concluded subsequent to the order of the court.
- e. The Democratic Republic of Unnat (Unnat National Corporation) shall also pay exemplary compensation for the loss of lives of 85 men and 20 women due to liver cancer and who delayed their treatment with the hope that they shall be cured by this new drug *Neti* and consequently could not get the same.

18. The Democratic Republic of Unnat (Unnat National Corporation 'UNC' owned by the State) [Respondent] respectfully requests the Court to adjudge and declare that:

- a. The Government of Unnat has not violated any obligation; basic principle of Article. 2 of the United Nations Charter to act in good faith in the performance of obligations, and that the Special Purpose Agreement is entered by both the parties through democratic and consensual method whereby all the information available in their legal domain in relation to nanoparticle have been classified and its technology was transferred through UNNATI with utmost bona-fide and, hence this presumption of violation of law stands without any legal basis and be not allowed to raise before the court;

- b. The Government of Unnat was ready to undertake more research and assist the Baati National Corporation with the plan of Special and Required Assistance as demanded by the circumstance and situation domestically and internationally that was not contemplated and those of which was not agreed by the Federal Republic of Baati and, but consequently refused and, hence this shall not be construed as willful concealment of information or male fide in the transfer of technology;
- c. The Government of Unnat cannot accept responsibility for situations not contemplated in the agreed terms and conditions of the Special Purpose Agreement and, hence has not accepted any other legal obligations not specified in the Special Purpose Agreement;
- d. The Government of Unnat shall not be held responsible for circumstances that are beyond their control and not in the foreseeable contemplation of risks and, hence they are not responsible for the losses;
- e. The Government of Baati be ordered to pay for the losses incurred by the Government of Unnat as they have transferred all the nano knowledge available in their legal domain without accruing any benefit and, hence Government of Baati shall be ordered to pay for the losses.

Note: Few and preliminary insights and reference materials on this moot court problem will be uploaded in the website in order to motivate students to take part in this prestigious moot court competition and to guide them in legal research on this new frontier of law, policy, science, research, trade and commerce. Students are required to check the website (www.symlaw.ac.in & www.moot.in) periodically.

[ANNEXURE – I]

**JOINT NOTIFICATION
ADDRESSED TO THE REGISTRAR OF THE COURT**

The Hague, 1 April 2015

On behalf of The Federal Republic of Baati and its National Corporation ('BNC' owned by the State) [Applicant] and The Democratic Republic of Unnat and its National Corporation ('UNC' owned by the State) [Respondent] in accordance with Article 40(1) of the Statute of the International Court of Justice, we have the honour to transmit to you an original of the Special Agreement between The Federal Republic of Baati and its National Corporation ('BNC' owned by the State) [Applicant] and The Democratic Republic of Unnat and its National Corporation ('UNC' owned by the State) [Respondent] Concerning the Differences between States in Interpretation of Laws and Fulfillment of International Obligations Relating to the Protection of Bioethics, Human Rights and Dignity from Conflicts that arose between Parties on Issues of Science and Technology, Law and Economic Development and with Special References to nanoscience and Other Issues signed in The Hague on the first day of April in the year Two Thousand Fifteen.

The Honorable Ambassador
The Federal Republic of Baati
and its National Corporation

The Honorable Ambassador
The Democratic Republic of Unnat
and its National Corporation

[ANNEXURE – II]

**SPECIAL AGREEMENT BETWEEN
THE FEDERAL REPUBLIC OF BAATI AND ITS NATIONAL CORPORATION
(‘BNC’ OWNED BY THE STATE)
[APPLICANT]**

VS.

**THE DEMOCRATIC REPUBLIC OF UNNAT AND ITS NATIONAL CORPORATION
(‘UNC’ OWNED BY THE STATE)
[RESPONDENT]**

Concerning the Differences between States in Interpretation of Laws and Fulfillment of International Obligations Relating to the Protection of Bioethics, Human Rights and Dignity from Conflicts that arose between Parties on Issues of Science and Technology, Law and Economic Development and with Special References to Nanoscience and Other Issues

**SPECIAL AGREEMENT
[Before the International Court of Justice]**

The Federal Republic of Baati and The Democratic Republic of Unnat and their respective National Corporations (hereinafter referred to as “the Parties”),

Concerning the Differences between States in Interpretation of Laws and Fulfillment of International Obligations Relating to the Protection of Bioethics, Human Rights and Dignity from Conflicts that arose between Parties on Issues of Science and Technology, Law and Economic Development and with Special References to nanoscience and Other Issues, *Recognizing* that the Parties concerned have been unable to settle these differences by negotiation and other methods of settlement of disputes as per the SPA; and,

Desiring to define the issues to be submitted to the International Court of Justice (hereinafter referred to as “the Court”) for settling this dispute;

In furtherance thereof the Parties have concluded the following Special Agreement:

Article 1

The Parties submit the questions contained in the Special Agreement (together with Corrections and/or Clarifications to follow if required) (“the Case”) to the Court pursuant to Article 40(1) of the Statute of the Court.

Article 2

It is agreed by the Parties that The Federal Republic of Baati and its National Corporation (‘BNC’ owned by the State) shall act as Applicant and The Democratic Republic of Unnat and its National Corporation (‘UNC’ owned by the State) as Respondent, but such agreement is without prejudice to any question of the burden of proof.

Article 3

(a) The Court is requested to decide the Case on the basis of rules and principles of general international law, as well as any applicable treaties and international customs and declarations concerning the differences between States in interpretation of laws and fulfillment of international obligations relating to the protection of bioethics, human rights and dignity from conflicts that arose between parties on issues of science and technology, law and economic development and with special references to nanoscience and other issues, arising out of the on-growing challenges of industrialization, privatization, liberalization and globalization, international community life, relations and legal order, the United Nations Organization and its specialized

agencies; global-policy formulation in the making of global legal system towards ensuring global rights, duties and justice.

(b) The Court is also requested to determine the legal consequences, including the rights and obligations of the parties, arising from its judgment on the questions presented in the case. The court is also requested to take note of the Special Purpose Agreement agreed between the parties prior to this agreement to invoke the jurisdiction of this court and to the extent the agreement is useful in interpreting the nature and circumstance of the relations and obligations between the parties.

Article 4

(a) All questions of procedure and rules shall be regulated in accordance with the provisions of the Rules of the International Court of Justice and its Practice Directions.

(b) The Parties request the Court to order that the written proceedings should consist of Memorials presented by each of the parties as per the time and date set and scheduled by this respective International Moot Court Competition.

Article 5

(a) The Parties shall accept any judgment of the court as final and binding upon them and shall execute it in its entirety and in good faith.

(b) Immediately after the transmission of any judgment, the parties shall enter into negotiations on the modalities for its execution.

In witness whereof, the undersigned, being duly authorized, have signed the present Special Agreement and have affixed thereto their respective seals of office.

Done in The Hague, The Netherlands, this first day of April in the year Two Thousand Fifteen, in triplicate in the English language

The Honorable Ambassador
The Federal Republic of Baati
and its National Corporation

The Honorable Ambassador
The Democratic Republic of Unnat
and its National Corporation

[ANNEXURE – III]

**SPECIAL PURPOSE AGREEMENT ON NETI BETWEEN
BAATI NATIONAL CORPORATION
(OWNED BY THE FEDERAL REPUBLIC OF BAATI)
AND
UNNAT NATIONAL CORPORATION
(OWNED BY THE DEMOCRATIC REPUBLIC OF UNNAT)**

This Special Purpose Agreement is made on 1st January 2014 between the Federal Republic of Baati and the Democratic Republic of Unnat.

Article 1 (Terms and Conditions)

Whereas, the Baati National Corporation and Unnat National Corporation agrees for a joint collaboration through their respective corporations towards the sole purpose of eradicating life-threatening disease of liver cancer through innovating, developing, producing and manufacturing of a life-saving drug from the shrub of *Neti* hereby agree to the following terms and conditions;

- (a) Production, manufacture, price-fixation, sharing of profits, sale, export-import, avoidance of double taxation and distribution of life-saving drug for eradication of liver cancer and all other aspects of this commercial venture shall be done only by a democratic and consensual method of decision making process in all its aspects at every stage of the process between the parties;
- (b) Innovation, contribution, development and collaboration in the innovation of life-saving drug shall be through a twin-sharing formula of ‘capital’ and ‘knowledge’ between the Federal Republic of Baati and the Democratic Republic of Unnat (hereinafter referred as ‘the parties’) respectively;
- (c) Twin-sharing formula of capital to a tune of agreed method of 70% (seventy) funds by the Government of Baati raised in-nation through public-private-partnership and the rest of 30% (thirty) of the funds by the Government of Unnat raised in-nation; and 70% transfer of technical know-how of nanoscience, nanotechnology and nanobiology by the Government of Unnat that are available and recognized in their legal domain and 30% technical know-how in the actual implementation of such knowledge by the Government of Baati that are available and recognized in their legal domain;
- (d) The profits sharing ratio shall be 40:60 % between the Government of Baati and the Government of Unnat respectively. The aforementioned ratio shall not be changed except after the expiration of the first five years subsequent to the availability of drugs in the market for sale, first in the Federal Republic of Baati and, then in the Democratic Republic of Unnat which shall be only after the expiration of first three years of sale in the Federal Republic of Baati of the first five years. This term and condition is a matter of concession considering the importance of the life-saving drug of the liver cancer among the citizens of Baati and hence the policy of best-interest shall be taken for interpretation and assessment of the situation in case of any conflict to the understanding between the parties;
- (e) The drug shall be named *Neti* and not by another name, and no other symbol or word, diagrammatic representation or colors shall be added to it except the name *Neti* in the form as shall be agreed once the drug is ready for advertisement and sale;
- (f) The drug shall be patented first upon the innovation as per the laws and regulations applicable to patenting the drug in the Government of Baati and this shall be subject to due consultation and verification by the Government of Unnat from time to time at every stage of the patenting process; and the drug shall henceforth only be produced and manufactured in the form of tablets of pharmaceutical dosage [with a required mixture of active substances and excipients, usually in powder form, then pressed or compacted from a powder into a solid dose. The excipients shall include diluents, binders or granulating agents, glidants (flow aids) and lubricants to ensure efficient tableting, disintegrants to promote tablet break-up in the digestive tract; sweeteners or flavours to enhance taste; and pigments to make the tablets visually attractive,

or a polymer coating on the tablet to make it smoother and easier to swallow, to control the release rate of the active ingredient, to make it more resistant to the environment in order to extend its shelf life], or and, any or all other additions to the form of pharmaceutical dosage for the purpose of chemotherapy or for any other therapy and treatments shall be as per the standards and prescribed norms issued by the Government of Baati through their respective authorized departments which shall be shared with the Government of Unnat;

(g) The production and manufacturing of the drug *Neti* shall be located in the factory or industry or any other establishment only within the territorial region that are under the active control of the Government of Baati in their defined territory;

(h) There shall not be any change or amendment or modification or revision whatsoever to the composition and Memorandum of Understanding of the Baati National Corporation and Unnat National Corporation unless agreed and approved by the democratic and consensual method between both the Governments and the parties except the changes that do not alter or affect the legal character of the Special Purpose Agreement and are considered only subsidiary and secondary without affecting the basic structure of this agreement;

(i) Party receiving the technical know-how and scientific research knowledge (Baati National Corporation) recognizes that this knowledge is confidential and proprietary and, that such information will not be utilized for any personal or private benefit whatsoever other than what is intended to and, that all the information in the form of documents through data, graphs, diagrams, memoranda and any other form embodying that knowledge and information will be only in the custody of both the parties and in no circumstances shall be shown to anyone or organization other than the respective parties under this Agreement or to the terms and conditions which fulfills the purpose of the Agreement;

(j) The governing and the choice of law clause shall be such that the dispute concerning the interpretation, construction and enforcement of the Agreement and all other legal obligations in case arises out of the Agreement shall be determined by the laws and legal system of the Government of Unnat and its legal jurisdiction; and in case of failure of this applicable governing law and jurisdiction as a result of violation of bona-fide, public policy, natural justice and all other general tenets and understanding of the obligations of international law in existence and shall be in existence in course of time, the dispute shall be referred to the International Court of Justice by virtue of a Special Agreement as required under Article 40(1) of the Statute that shall be constituted between the parties at the relevant point of time of the dispute through the democratic and consensual method of agreement;

(k) The choice of law rules or rules of the conflict of laws shall not be held relevant for the final determination of the settlement of the disputes between the Government of Baati and Government of Unnat as the agreed clause provides for the final settlement of disputes in the International Court of Justice in case of the failure of the Special Purpose Agreement;

Article 2 (Overriding Mandatory Rules and Public Policy)

(a) These Principles shall not prevent a court from applying overriding mandatory provisions of the law of the forum which apply irrespective of the law chosen by the parties;

(b) The law of the forum determines when a court may or must apply or take into account overriding mandatory provisions of another law;

(c) A court may only exclude application of a provision of the law chosen by the parties if and to the extent that the result of such application would be manifestly incompatible with fundamental notions of public policy (*ordre public*) of the forum;

(d) The law of the forum determines when a court may or must apply or take into account the public policy (*ordre public*) of a State the law of which would be applicable in the absence of a choice of law.

(e) These Principles shall not prevent from applying or taking into account public policy (*ordre public*), or from applying or taking into account overriding mandatory provisions of a law other than the law chosen by the parties, if it is required or entitled to do so.

Article 3 (Exclusion of Renvoi)

A choice of law does not refer to rules of private international law of the law chosen by the parties unless the parties expressly provide otherwise and the application of renvoi is excluded.

Article 4

In these Principles, a reference to law includes rules of law that are generally accepted on an international, supranational or regional level as a neutral and balanced set of rules, unless the law of the forum provides otherwise.

[ANNEXURE – IV]

FOUR STEP FORMULA IN THE MAKING OF NANOPARTICLES FROM NETI

Steps	Particulars	Formula For Preparation
Step 1	Preparation of extract from <i>Neti</i> leaves	<ul style="list-style-type: none"> . 10 grams of fresh leaves of <i>Neti</i> are washed in distilled water . Leaves are sterilized with mercury chloride . Sterilized leaves are cut into fine pieces and boiled with 100 milliliters of double distilled water for 15 minutes at 60°C . Leaves are filtered through 'whatman no. 1' filter paper and stored at 4°C in refrigerator for 2 weeks
Step 2	Manufacture of nanoparticles from the extract	<ul style="list-style-type: none"> . 10 milliliters of leaf-extract is mixed with 90 milliliters of silver nitrate solution at room temperature . After mixing, the colour of the solution changes from yellow to brown within two minutes . A double-beam uv/vis spectrophotometer is then used to pass a beam of light through this brown coloured solution for 20 minutes
Step 3	Confirmation of the size of nanoparticle in nanometer range	<ul style="list-style-type: none"> . A sample from this solution is observed under transmission electron microscope . The microscope shows that the solution contains nanoparticles and that their dimensional-ranges lie between 2 to 10 nanometers . It also shows that the nanoparticles are predominantly spherical in shape and crystalline in nature
Step 4	Encapsulation of nanoparticle for manufacturing the required nanocapsule for treatment of liver cancer	<ul style="list-style-type: none"> . The nanoparticles are precipitated from the brown coloured solution . The precipitated nanoparticles are encapsulated in water-soluble polymer shells to form nanocapsules of size 100 nanometers
Result Expected From Neti Nanocapsules		
<ul style="list-style-type: none"> . <i>Neti</i> nanocapsules enter through cell membranes . <i>Neti</i> nanocapsules tend to bind with malignant cells of human body . <i>Neti</i> nanocapsules leave healthy cells less affected . <i>Neti</i> nanocapsules affect multiplying capacity of malignant cells . <i>Neti</i> nanocapsules kill malignant cells and shrink cancerous tumour 		

[ANNEXURE – V]

METHODS FOR TREATMENT OF LIVER CANCER USING NETI NANOPARTICLES AND NETI NANOCAPSULES

Method	Particulars	Details
Method 1	Drug delivery	<ul style="list-style-type: none"> · <i>Neti</i> nanocapsules when given as a drug attack cancerous cells directly at cellular and subcellular level
Method 2	Chemotherapy	<ul style="list-style-type: none"> · <i>Neti</i> nanocapsules enhance the effect of existing chemotherapy by significantly increasing the drug's ability to target and destroy cancerous cells · <i>Neti</i> nanocapsules may be proved to be most useful for more aggressive forms of cancer that are resistant to current therapies
Method 3	Radiation therapy	<ul style="list-style-type: none"> · <i>Neti</i> nanoparticles can be used to enhance efficacy of radiation therapy · <i>Neti</i> nanoparticles used in radiation therapy allow for better targeting of cellular components within the tumor tissues · This allows more localized and consolidated damage of cancerous cells · This in turn leads to reduction in therapeutic radiation dose further limiting the damage to healthy tissues

[ANNEXURE – VI]

MEDICINAL PROPERTIES OF NETI LEAVES AND NETI NANOPARTICLES

Substance	Medicinal Properties
<i>Neti</i> leaves	<ul style="list-style-type: none"> · <i>Neti</i> leaves contain rich amount of calcium, iron, phosphorus, carbohydrates, fat, crude fiber and minerals · <i>Neti</i> leaves are used to treat respiratory diseases, chronic febrile infections, tuberculosis and cardiac and liver diseases · <i>Neti</i> leaves possess antibiotic, antibacterial, and anticancer activities
<i>Neti</i> nanoparticles	<ul style="list-style-type: none"> · <i>Neti</i> nanoparticles vigorously possess antibiotic, antibacterial, and anticancer activities · <i>Neti</i> nanoparticles effectively penetrate and target tumor-cells due to their spherical shape · Due to their nanosize <i>Neti</i> nanoparticles reach into tumor-cells and various cellular compartments including the nucleus of cells · Excess <i>Neti</i> nanoparticles that do not hit their target break down and get flushed away, reducing toxicity considerably

[ANNEXURE – VII]
(Shared by the United Nations Organization with the member-states)

RISKS IN MANUFACTURE AND USE OF NANOPARTICLES

<ul style="list-style-type: none"> · The study dealing with toxicity of nanoparticles has appeared only recently · Yet the study of toxicity of nanoparticles has become a matter of deep concern for many pharmaceutical companies for following scientific reasons; <ul style="list-style-type: none"> ◦ When a substance is reduced to its nanosize it gains unique properties that are different than their larger counterparts ◦ The properties of a nanosize material can be totally opposite to the properties of their larger counterparts. For example a metal like gold is inert in its normal size; however when it is reduced to nanosize it becomes highly active ◦ The characteristics of nanoparticles that are relevant in affecting human health and environment are: size, chemical composition, surface characteristics and shape · Hence risk-measurement and care in the manufacture and use of nanoparticles has become extremely important in order to determine whether and to what extent nanoparticles may pose a threat to environment and human beings 		
Risks	Particulars	Details
Risk 1	Manufacture of nanoparticles	<ul style="list-style-type: none"> · Wastes or byproducts resulting from the process of manufacturing of nanoparticles may carry nanoparticles in more or less significant quantity · If wastes or byproducts are discharged into streams and rivers, nanoparticles can potentially enter into streams, rivers or seas · Nanoparticles can get accidentally released during the process of manufacturing · Accidental release of nanoparticles can enter not only water but also surrounding atmosphere
Risk 2	Use of nanoparticles in cancer treatment	<ul style="list-style-type: none"> · Once the function of nanoparticles of targeting the tumour-cells is over, only some and not all nanoparticles are known to have the ability to degrade or get readily dissolved inside human body · The doses of such nanoparticles may accumulate in biological systems of body and persist inside the body for a long time · When nanoparticles are used as drug carries for cancer treatment they have the potential to cross the blood brain barrier (bbb). Bbb is a barrier between brain blood vessels and brain tissues that protects brain from many harmful substances. On one side this makes nanoparticles extremely useful as a way to deliver drugs directly to the brain. However on the other side this also becomes a major drawback as nanoparticles used to treat liver cancer may prove to be toxic to brain
Risk 3	Hazardous effects on environment	<ul style="list-style-type: none"> · Materials with nanosize particles have always existed in nature and atmosphere. However when more and more of man-made nanoparticles are created they can potentially be disturbing to environment, mainly air, water, soil and plants · When nanoparticles enter environment, they may not be toxic to living species initially, but they may in their lifecycle become toxic later on. This makes risk-measurement of nanoparticles difficult · Bulk of man-made nanoparticles may react to other substances in environment. They may either speed up or slow down or prevent the reactions that already taking place naturally in the environment

Risk 4	Hazards from inhalation of nanoparticles	<ul style="list-style-type: none"> · Inhaled nanoparticles can enter human respiratory tract and can get deposited in lungs · From lungs they can potentially move to other organs such as brain, liver, spleen and also possibly foetus of pregnant women · Inhaled nanoparticles may cross the mucous membrane inside nose and reach brain through olfactory nerve · Inhaled nanoparticles can also get a passage to enter into blood cells · Data on hazardous effects of inhaled nanoparticles is extremely limited. However the hazardous effect of inhalation can be considerably large, depending on exposure time
Risk 5	Hazards for water	<ul style="list-style-type: none"> · Waste nanoparticles from a manufacturing plant entering a stream can alter the ph of the stream · Alteration of the ph can lead to dissolution of metals that are not normally soluble, such as aluminum which can be toxic to living organisms in water
Risk 6	Hazards for soil	<ul style="list-style-type: none"> · Nanoparticles can be toxic to microorganisms in soil and groundwater · Nanoparticles can potentially affect microorganisms and insects in soil and groundwater · Consumption of nanoparticles-affected fish and sea-food would in turn become dangerous for human beings · Once entered in the food chain, nanoparticles may also enter mammals
Risk 7	Hazards for plants	<ul style="list-style-type: none"> · From soil and groundwater nanoparticles can also enter plants · Nanoparticles from atmosphere can also get deposited on crops to provide another route for toxic or reactive nanoparticles to enter into the food chain