

Deadly Tsunami and the negative impact on Iran border regions (Case study: Ahvaz, Iran)

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ABSTRACT: Today, citizens are concerned for the influx of tiny pollens to Iran from neighbors as health threatening factor; however, there still no measure has been taken to inhibit tiny pollens. Now, not only air pollution, but also tiny pollens are regarded as major challenges, while the majority is unaware of terrible effects of these tiny pollens on lungs. Yet, the executives provide no sufficient information of these tiny pollens to people so that enabling them to take required measures. Nevertheless, it seems that tiny pollens are being Iranian companion particularly in Western and southern states. As the first step, the people, with no projection, must be noted of the seriousness and hazards of these tiny guests.

Keywords: Tiny pollens; pollutants; Health; Ahvaz.

INTRODUCTION

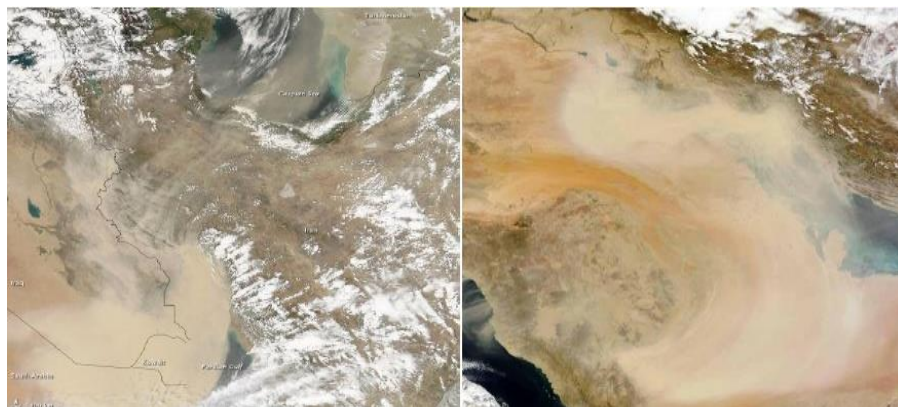
Dust or tiny pollen is the mass of fine solid particles of dust and smoke, etc spreads in the atmosphere limiting the horizon vision within 1 to 2 km. Dust is considered, in the environmental classification, as some type of air pollution. The present study tries to analyze the impacts of electromagnetic fields on tiny pollens; and finally, provides some recommendations of designing a system to suppress dust particles.

Studying dust material showed that the material is normally combined of aluminosilicates, silicates, sulfate as well as carbonate minerals. Thus, some computations were carried out for such particles which revealed that electromagnetic radiation can reduce dust level through the two adsorption and desorption mechanisms. (Asiliyan, 2007)

Iran as compared to world arid regions is situated on the arid belt with an area of 64.4% dry and ultra dry climate, 3.3 times more than world percentage. Increasing temperature causes turbulence and wind in lower layers of atmosphere. Assuming wind speed may be higher than the speed of soil separation threshold or erosion threshold; then, considerable amount of soil particles will be detached entering in to atmosphere as dust. (Beigi, 2009) Economic downturn and deadlocks in Khuzestan, Iran, due to bad weather conditions and serious atmospheric changes including dust, have largely influenced on country economy and descended the economy pulse. This study attempted to provide appropriate strategies in preventing drought and dust sources adverse effects in order to improve public health by finding the causes and analyzing satellite images during the last two years. (Amini zaree, 2010).

The term of tiny pollens

Tiny pollens entered in Iran mainly have two structures including "clay" and "Silica" or quartz particles. The clay, light type with the ability of traversing long distances and longer deposition is more coming from Iraq deserts generally focused on the western states; whereas, the silica type more comes from Saudi Arabia mainly targeting southern areas. However, the latter, in comparison to the former, is less consistent in the air and less risky since its relative high weight. (Majnoonian, 2011).



The Origin

Tiny pollens are originated based on two theories: the first theory, widely advertised, indicating that the tiny pollens originate from Iraq, Saudi Arabia, Syria and even North Africa. But, the second one emphasizes on insider origins of some tiny pollens. Thus, ponds neighboring areas of Iran and Iraq border, particularly Hoor o al'aazim pond, are pronounced as sources.

Several experiments with electron microscope showed that there is seen Diatom, a kind of saline and freshwater alga, in tiny pollens. Moreover, tiny pollens contain some type of zooplankton named Ostracod. (KISS A, 2010).

In Iran, tiny pollens majorly originate in Iraq deserts and the swamps exposed to drying; the dirt and sand come through Boreas. "Mulch" is a typical sticky oil product being used in stabilizing dune sand of desert areas (Aabdi aram vand 2009) The phenomenon of tiny pollen usually includes the thickness of less than one km; and if it is extremely heavy, it will not go beyond one or two km. (Majnoonian, 2011).

Literature review

1-"Studying the relation of microbial population (bacteria and fungi) of the inside to outside in normal and dusted conditions in Ahvaz city": the results indicated low amount of fungi population of the insider environment to outside in normal condition as compared to dusted situations. The quantity of bio aerosols in dusty treatment was high rather normal; hence, the biologic quality would probably get worse during dust conditions in Ahvaz. The obtained findings demonstrated that the amount of bacteria and fungus such as Aspergillus, Cladosporium and Alternaria, causing allergy and exacerbation of respiratory symptoms, may increase at occurrence of dust storms. (Zaaree mahmoodabadi, 2011).

2-"Studying the relation of PM₁₀ level to total bacteria concentration and the medical common actinomycetes in the air of Ahvaz": the results indicated that there are 23 common human pathogenic species, 5 plants pathogens during dust. 4 of the specified species were identified and separated, for the first time in this study, from Ahvaz dust particles. Species that opportunistically cause diseases, those with harmful effects on plants and even animals of the region as well as unknown species spreading over through tiny pollens not only influences on human health but also destructively influences on agriculture and vegetation. (Aabdi karamvand, 2009).

3-"Studying dust physical and chemical characteristics in Khuzestan County, Iran": the findings showed that concentration of elements and heavy metals particles (TSP) in dusty days, increases 3.2 more than normal days. Furthermore, concentration of elements including Iron, Calcium, Aluminum, Lead, Manganese, Nickel and Zinc has significantly increased comparing to normal days. (Keramat, 2011).

4-"Comparing the quantity of skin disease referents to medical care centers in dusty period and normal condition in Ahvaz": there were reported some skin problems related to tiny pollens phenomenon like Atopic Dermatitis. The study results demonstrated that there is significant difference in the frequency of Atopic Dermatitis and generalized pruritus of Ahvaz inhabitants during dusty air conditions. Therefore, the possibility of tiny pollens impact on intensifying and or producing skin Eczemas can be introduced. Moreover, Psoriasis increases approximately twice in dusty conditions compared to normal. (rzyzanowski, 2008).

5-"Tendency to Ahvaz inhabitants' migration due to tiny pollens phenomenon": the results of this questionnaire study showed that in spite of proper economic foundations in Khuzestan County and Ahvaz city, migration tendency is still high among inhabitants particularly educated ones. The findings also provided that the migration level in Ahvaz has increased, in recent years, as a result of tiny pollens. (Safaarzade, 2010).

6-"Estimating diseases load and death caused by tiny pollens using Air-Q model in Ahvaz": modeling tiny pollens concentration of Ahvaz city in 2009 showed 2% increasing of death rate and 10% of cardiovascular disease per 10

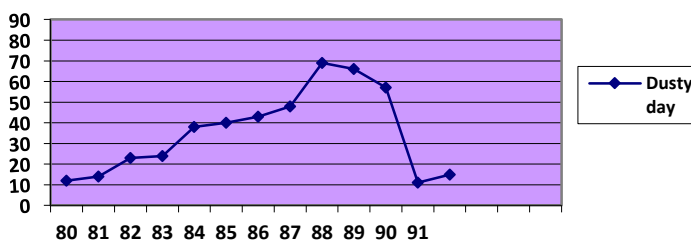
$\mu\text{g}/\text{m}^3$ increasing tiny pollens concentration. The model results indicated 1165 death cases related to tiny pollens in Ahvaz so that by raising tiny pollens concentration from $200 \mu\text{g}/\text{m}^3$ to $400 \mu\text{g}/\text{m}^3$, the total mortality and respiratory death rate related to tiny pollens as well as patients referring increased 128% and 129%, respectively. The findings revealed that 1551 cases of respiratory disease in 2009 were caused by tiny pollens phenomenon. Also, 12% of total clinics respiratory outpatients, within the year, were attributed to this occurrence. 13% of the total cardio vascular and respiratory deaths were due to concentrations of higher than $20 \mu\text{g}/\text{m}^3$ as continuity of high concentrated days. (Heidari, 2010)

Health threat

Air pollution of suspended particles

Dust phenomenon makes breathing difficult. So, heart and lung patients are asked to wear masks or stay at home. Air pollution can lead to some phenomena such as decreased vision and or normal life disorder. The effects of air polluted by suspended particles on materials can be produced through erosion, deposition, and omission, chemical direct and direct effect as well as electrochemical corrosion, it can also influence on plants particularly on leaves. Dust phenomenon inhibits providing the required air for plants photosynthesis largely influences on reducing agricultural products performance; and furthermore, causes various respiratory effects in livestock. (Jalali, 2010) Ahvaz is encountering air pollution of sulfur gas on one hand; and on the other, is attacked by tiny pollens of chemical and depleted uranium. (Zeraaii mahmoodabadi, 2011).

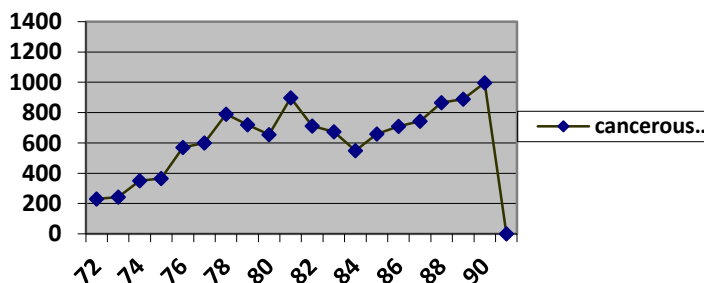
Khuzestan land is polluted by chemical bombs; in addition, the tiny pollens arriving from Iraq are also polluted by depleted uranium caused by U.S attack to Iraq. (Zerraii mahmoodabadi, 2011)



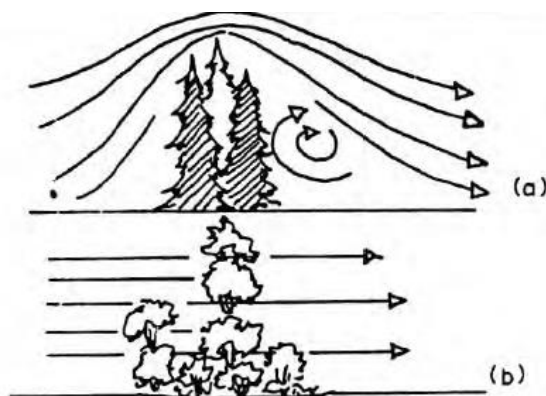
Dusty Days

Statistics showed that new arrivals of cancer patients, in 1996 to 2005, at Shafa hospital increased by 500%. So that new patients raised from 223 individuals in 1996 up to 998 in 2005; Whereas, Khuzestan population growth was maximum 25%. On the other hand, the number of dusty days within 2001 to 2012 demonstrated 800% increase of air pollution. (Zareei mahmoodabadi, 2011).

Concurrently, WHO introduced Ahvaz, Iran oil production center, as the most polluted city, for the second time, around the world which similar to 10 other cities in WHO list is considered extremely an industrial city.



Statistics of new yearly referrents of Shafaa Hospital in Ahvaz since 1993 to 2012
New cancer patients



Southern ponds in Iraq and Major pond, which had the area of 20000 km² in 1970s, act as a barrier against tiny pollens arriving from Iraq desert by increasing the region humidity; moreover, reduce the dust. Though, the ponds area in 2001 has reduced to 7% of the initial area in term of aerial photography. (Heidari, 2010).

Drying ponds causes deposition of soft soil making dust with even the slightest wind. Study of Dr. Akhani, professor of Tehran University, demonstrating ponds' unicellular creatures in dust of Iran has confirmed the pond origin of these particles. (Beigi, 2009)

How to deal

Otolaryngologists and respiratory specialists recommend that nose regular washing by help of salt water and washing serums, during pollution period, are considered as the best prevention ways of dust adverse effects. It is recommended to avoid unnecessary outdoor activities in dusty, polluted days; note that usual, ordinary masks are not as efficient in filtering suspended particles. Furthermore, patients with respiratory diseases like asthma and heart disease must avoid outdoor activities, too, in dusty days. The citizens are suggested to stay home and keep it clear by air filtering and conditioning. It must be mentioned that children as higher vulnerability require much care. (Asilian, 2007).

Recommendations

First, as more than half a century being activated in desertification and stabilizing dune sand, we must not only have identified all deposition sources' focus, but also we must have been enabled to terminate the biologic stabilization. Yet, more than half of the country active centers are not stabilized since monetary deficiencies as well as management failures.

Second, unfortunately, environmental concerns have always been sacrificed in agricultural and industrial organizing. For instance, just notice fast drying process of shoal fields of most large reservoir dams; from Massile plain downstream of 15 Khordad Dam to Bakhtegan Lake and Tashak and Kamjan ponds in Sivand, Doroodzan as well as Mola sadra dam shoals; and Gav Khoni pond in Zayande rood dam shoal, in addition to painful status of Uremia Lake with dams built on all rivers leading to the lake, except Barandooz river, with no practical requirement of providing ponds and lakes water right in downstream. Therefore, we are intentionally increasing the scope of vulnerable, deposition areas in front of wind erosion.

And finally, consider indifference of neighboring countries. Specially, when Saddam Hussein, at the end of twenties century, decided to detour Tigris and Euphrates; he tried to intensify the security of its border regions versus Iran army by building a canal called as Saddam Canal in addition to providing the required water for agricultural development in the north of Basra; while, this led to extinction and expiration of the valuable, international Hoor Al Azim Pond making it to a salty and sandy heap. On the other side, Iranian party also intensified the status in retaliation by building Karkhe dam and reducing water entering to Hoor Al Hoeyze. Samplings of dust or tiny pollens of Tehran sky presented that these tiny pollens are originated from the dried Hoor Al Azim pond and old Mesopotamia fields.

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