

Survey on Countries in the World with Advanced Military Artillery and their Forces Sustainable in any Climatic Conditions

By

Sh. Sachin Gupta, Chancellor

Department of Management, SOMC, Sanskriti University, Mathura, Uttar Pradesh, India

Email Id- chancellor@sanskriti.edu.in

Ms. Akansha Vashisht, Research Assistant

School of Law, Galgotias University, Greater Noida, Uttar Pradesh, India

Email Id- akanksha.vashist@galgotiasuniversity.edu.in

Yogita jain, Assistant Professor

Faculty of Law, SGT University, Gurugram, Haryana, India

Email Id- yogita_flaw@sgtuniversity.org

Abstract

The geographical orientation of any land decides the prosperity of that country regarding the wealth or the lifestyle of the people. There are 195 flag-registered countries in the world which belongs to the different regions as well as different climates. The people belonging to the regional climate are natives who can sustain in any climate condition such as summer, winter, autumn, spring, and monsoon season which are varying according to the country. The military power is formed by the group of peoples who are belonging to the country and adaptable to any climatic conditions of the country. The military and geography are interrelated to each other, as the military of any country are adaptable to its geographical conditions which may be snowfall, heavy rain, drought, etc. Some countries in the world are adaptable to any climatic condition and vegetation, some of which are said as superpowers due to their advanced artillery and ammunition. The focus of the study is to analyze and compare the superpowers with their artillery and the geographical condition with which their army deals. The study will help in analyzing the superpowers about positive and negative points and how their military can fight in any conditions, in any zone as well as independent to natural climatic conditions with proper equipment and artillery. In the future this study will helps to undrstd about the Advanced Military of the country and their Forces who are Sustainable in any Climatic Conditions.

Keywords: Artillery, Climate, Country, Defense, Military, War.

Introduction

The world has 195 countries and some unregistered territories and some unknown or unreachable islands with oceans (Chaudhary, Prakash, & Kumari, 2018; Tesfahun & Chawla, 2019). The regions in the world are divided on the basis of their geographical orientations, including habitation, temperature, and rainfall in that region which are affecting the flora and fauna and human lifestyle (Gatoo & Singla, 2020; Singh et al., 2016). Expanding countries and claiming territories are in the history of the world, so every country improves its defense as well as the attack system. The attack is not limited to the land-only but it is now developed system attacks from sky as well as from the water (Gupta & Agarwal, 2018). The conflicts between neighboring countries and the expansions as well as peace in the country are the main

reasons to have a military (Goswami & Goswami, 2020; Mishra, Singhal, & Kundu, 2020). The military workability may vary according to its climate condition such as deserts, ocean, snowfall, rains, drought, mountains and so on. The developed military represents the prosperity of that country in all aspects (Farooq, Verma, & Singla, 2019; Sheikh, Yadav, & Kumar, 2020).

The United States of America is one of the superpowers with advanced military and ammunition. The United States of America (USA) is the third country in size of land as well as population. The country's border in the west direction is with the Pacific and the Atlantic Oceans to the east while to the south is country Mexico and to the north is Canada (Upadhyay, Pathak, & Purohit, 2020; youGovAmerica, 2022). The United States (US) has a tall mountains range in the west direction which is twice the size of the European Union and a long central plain. The annual budget is \$770 billion with active frontline personnel of 1390000, having tanks of about 6612 while total aircraft are 13247 and Submarines 68 with 11 aircraft carriers (globalfirepower, 2022a). Some countries that have unfriendly relations with the USA are North Korea, Iran, Syria, Iraq, Afghanistan, Russian Federation, Libya, China, Somalia, etc. thus the country has high and developed military forces. Figure 1 is a regional map of the United States of America that highlights its geography. Area wise America is smaller as compared to Russia, China, and India but the budget is high which increases the advancement in technology of the artillery. America has all the variations in biodiversity as it has sea, ocean, forests, mountains, snow, and desert. The military of America has all war zone practices as all the vegetation is there, but country America needs to develop the paramilitary forces as there are no special paramilitary forces.



Figure 1: Illustrates the Regional Map of the United States of America with all Boundaries with Ocean and Neighboring Countries.

Russia is the first biggest country in the size of land which occupies 10% of all the land in the world. The Russian region is different from ice coastline to desert, tall mountains to huge marshes. Siberia occupies more than 70% of Russia and is a pine trees forest. Russia shares the boundary with many countries including China, Mongolia, Kazakhstan, Ukraine, Belorussia, Japan, North Korea, Finland, etc. as shown in Figure 2. The annual budget is \$154 billion with active frontline personnel of 850000, having tanks 12420 while total aircraft

are 4173 and Submarines 70. The countries that have unfriendly relations with Russia are the United States of America, Ukraine, Sweden, Poland, Turkey, France, United Kingdom, Germany, etc. Russia is sharing the biggest land boundaries with neighboring countries of Asia and Europe and also has a long coastline (quora, 2022). Land wise Russia is the biggest country in the world having all seasons and it is close to the North Pole so the temperature fall is seen most with snowfall in half of the country.



Figure 2: Illustrates Regional Map of Russia Showing its Boundaries with Neighboring Countries and the Boundaries with Ocean.

China is one of the largest countries in the world, and its inside land distributed in the mountains, deserts, and forests. China shares its boundaries with Mongolia, Russia, India, Nepal, Tajikistan, Japan, Taiwan, etc. as shown in Figure 3. The population of the country is 1.4 billion which is the largest among the other countries in the world, out of which 35 % of the population are city residents and others live in rural villages or are migrants. The annual budget is \$250 billion with active frontline personnel of 2,000,000, having tanks of about 5250 while total aircraft are 3285 and Submarines 79. China has boundary disputes with many countries and has unfriendly relations with the countries India, Tibet, Nepal, Russia, Mongolia, Taiwan, the United States of America, Japan, etc. China is one of the largest active personal countries sharing long boundaries with Russia, India, Mongolia, and the Pacific Ocean. China has a land expansion policy and invades its neighboring countries so the needs to develop a land defense system.



Figure 3: Illustrates the Geographical Map of China and its Boundary are Sharing with Countries and Water.

The country of Japan is a group of 4000 islands in which four islands are “Hokkaido, Honshu, Shikoku, and Kyushu”. Korea, China, and Russia are neighboring countries as shown in Figure 4 (National Geographic Kids, 2022). Almost 80% of the land is covered with mountains up to the largest island “Honshu”. The highest peak is Mount Fuji which is a cone-shaped volcano. Japan is an island surrounded by the water of the Pacific Ocean and the Sea of Japan. The annual budget is \$47.6 billion with active frontline personnel of 247,173, having tanks 1004, while total aircraft are 1449 and Submarines 21. North Korea, China, Philippines, South Korea, Cambodia, Russia, Belarus, Vietnam, Laos, Indonesia, Malaysia, Marshall Islands, and Nauru are the few countries having unfriendly relations (quora, 2022).



Figure 4: Illustrates the Regional Boundaries of Japan Islands with Countries and Water (National Geographic Kids, 2022).

India is part of the continent of Asia which forms a peninsula, as it is surrounded by water on three sides while land on the north side. The world's highest mountain range, the Himalayas, rises in the north. India has land, desert, mountains, snow, heavy rain, high temperature, and the sea as well, which increases the biodiversity of India. India shares its boundaries with China, Nepal, Bhutan, Myanmar, Pakistan, Afghanistan, Sri Lanka, Maldives, and Bangladesh as shown in Figure 5. The Siachen glacier is one of the coolest places in the world and has the lowest temperature record. The annual budget is \$49.6 billion with active frontline personnel of 1,450,000, having tanks of about 4614 while total aircraft are 2182 and Submarines 17. There are very few countries that have unfriendly relations with India they are China, Pakistan, and Korea (topcount, 2022). India is a peninsula as three sides of the country are covered with water and the northeast side with the Himalayas. India has friendly relations with Russia, Japan, and America which are the superpowers that make India itself stronger. The main issues of India are direct with Pakistan and China due to overlapping borders and global competitors. India has an Arabian sea on the southwest side and the Bay of Bengal on the southeast side while the Himalayas mountain range from north to northeast are the positive points for the country to stop the invaders. India is backward in artillery production most of the artillery is bought from Japan, China, Russia, America, etc.

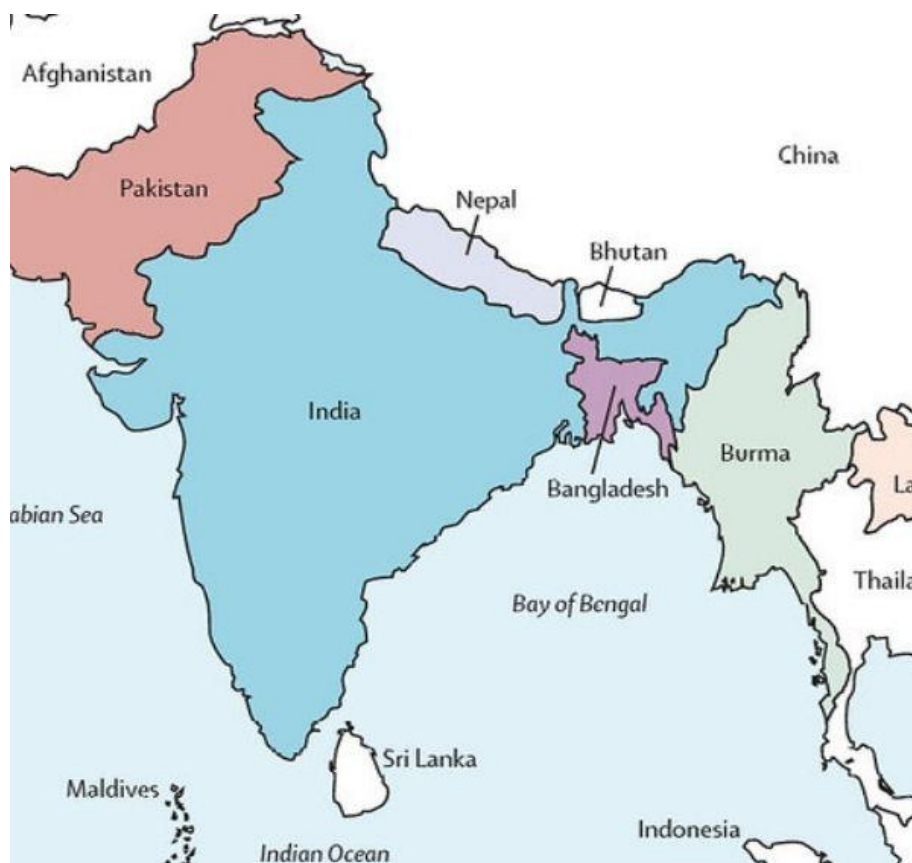


Figure 5: Illustrates the Regional Map of India along with Neighboring Countries which are Sharing Boundaries (IASBABUJI, 2022).

There are five seasons in the world varying according to the tropical conditions of particular countries as they are located in different positions from the equator as well as poles. The summer, winter, spring, autumn, and monsoon are the main seasons of climatic conditions. The varying season varies the lifestyle and performance of the military of that region as well the use of equipment used for every region is different. The countries invest a lot in maintaining the health of their military forces and practice them to work in all tropical conditions. The countries mentioned in Table 1 are located at different positions on the earth hence the variation in the military powers. All countries in Table 1 having four climatic conditions which are based on summer, winter, spring, and autumn and the monsoon showers are there in all countries but India specifically mentions it as the fifth season.

Table 1: Comparison based on Climatic Conditions in the Countries at Different Locations on the Earth

Sr. No.	Seasons of climatic conditions	United States of America	Russia	China	Japan	India
1	Summer	Yes	Yes	Yes	Yes	Yes
2	Monsoon	No	No	No	No	Yes
3	Winter	Yes	Yes	Yes	Yes	Yes
4	Autumn	Yes	Yes	Yes	Yes	Yes
5	Spring	Yes	Yes	Yes	Yes	Yes

Discussion

The waterways or seashores-based countries have the naval artillery, while America (USA) has a more budget in the sector of defense than the next four countries as per a survey which is followed by Russia, China, India, and Japan. Due to surrounding by water, all the countries have naval bases with advanced naval artillery including navy rail guns, submarines, and aircraft carriers. Waterway defense is a must for the countries with seashores, America has a large number of submarines than any other country in the world. America has the biggest fleet of 11 aircraft carriers which is advantageous. The United States of America has the most advanced artillery collection and the high military annual budget followed by Russia, China, and India. As all countries have water boundaries they have advanced naval forces with submarines and aircraft carriers. Table 2 shows a comparison between artillery and the military of all five countries ([globalfirepower, 2022b](#)).

Table 2: Comparative Tabular Arrangement of the Countries with their Army, Navy, and Air Forces Artilleries.

Sr. No.	Artillery, forces and vehicles	America	Russia	China	India	Japan
1	Active personal	1390000	850000	2000000	1450000	240000
2	Reserved forces	442000	250000	510000	1155000	55000
3	Paramilitary forces	0	250000	624000	2527000	14000
4	Total aircrafts	13247	4173	3285	2182	1449
5	Fighter aircrafts	1957	772	1200	564	217
6	Trainers	2661	522	399	353	425
7	Special missions	774	132	114	71	164
8	Helicopters	5463	1543	912	805	554
9	Attack helicopters	910	544	281	37	119
10	Tanks	6612	12420	5250	4614	1004
11	Armored vehicle	45193	30122	35000	12000	5500
12	Self-propelled artillery	1498	6574	4120	100	214
13	Towed artillery	1339	7571	1734	3311	480
14	Mobile rocket projectors	1366	3391	3160	1338	99
15	Fleet strength	484	605	777	295	155
16	Aircraft carriers	11	1	2	1	0
17	Helo carriers	9	0	1	0	4
18	Submarines	68	70	79	17	21
19	Destroyers	92	15	41	10	36
20	Frigates	0	11	49	13	4
21	Corvettes	22	86	70	22	6
22	Patrol vessels	10	59	152	128	6
23	Mine warfare	8	49	36	0	22

The active personnel is the active forces of any country followed by reserved and paramilitary forces. The China has highest active military force in the world which is followed by its neighboring countries including India, Japan, and Russia, and America in the third position. The India has largest reserved and paramilitary forces while America doesn't have paramilitary forces. As all countries are surrounded by mountains there are some places where it is impossible to reach by the roadways as well as their climatic conditions are varying to tackle the invaders in each region. The tanks, aircraft, and submarines are the mode of transportation and tackling the enemy in any region. The snow regions are the dangerous regions as on-road transportation is dangerous so air transportation is used. The Siachen glacier is one such dangerous place in India where the temperature falls at any time with a decrease in oxygen level, as there is a snowy region the transportation is done by airway. Tanks are the most used equipment for land attacking issues which can move in any hard land conditions, but it is dangerous to use the tanks in wetlands as the soil is unable to hold the heavyweight of tanks. The submarines are used for tackling waterways attacks, as they can move in the water at a certain level.

Air forces are one of the main military forces which attack the target through the air, the America has the highest number of fighter aircraft and helicopters with high efficiency of hitting the targets. The total fighter aircraft and total fighter helicopters of America are still more than the sum of the other four countries which can work in any climatic conditions as mentioned in Table 2. While there is some special artillery that is used in airways depending on the situation as well as climatic conditions. All the countries have mountain ranges so the airway is the best way to reach the top of the mountain to keep an eye on invaders. Due to advancements in technology the use of artificial intelligence is increased which helps in handling artillery easily.

The armored vehicles and tanks are used on the land where the forest region is present. Russia has the highest number of tanks, self-propelled artillery, towed artillery, and mobile rocket projectors. It can be said that Russia has the strongest and most developed land defense system as it shares a long border with many countries. Japan has not had much of a land defense system as the Japan Island is surrounded by water so there is no land invasion issue by neighboring countries. Other than tanks America, Russia, China, and India have the largest armed forces in the world which are capable to work in any conditions and climate in all the countries have the same. The variations that occurred are due to changes in distance between the equator as well as tropical zones which affects the army of attacking country as they are new to the environment. The guns are highly equipped, modernized, and advanced which are now able to shoot the distant target as well as to fire many rounds in one shot.

As America has desert so the war practices as well weapon testing can be done by the military in their land. America is developing its aircraft carrier system which makes them undefeatable in the water. Taiwan is one of the neighboring countries which have an issue with China due to their expansion policy. The aircraft carriers are most important in the naval defense system for the country which is sharing long water borders. The island of Japan is one of the countries which is surrounded by water as the east side has the Pacific Ocean and to its west, there is the Sea of Japan. According to the area of Japan, it has developed water defense systems with 4 helo carriers and 21 submarines which is more than India. While America has the highest helo carriers and aircraft carriers. China has the highest number of submarines followed by Russia, while India has only 17 submarines and 1 aircraft carrier. Russia has highly advanced corvettes and mine warfare, while China is at the top for fleet strengths, frigates, and

patrol vessels. Rockets, missiles, air defense systems, and nuclear weapons are also used based on their necessity. The air defenses are mostly active in the developed cities of the country, to avoid the Arial attacks by the invader. America, Russia, China, and Japan have developed highly advanced air defense systems.

Conclusion

Each country is unique in its way and depending on its climate conditions, habitation, diet, culture as well as the surrounding (particular place where people lives). America is lagging in land defense as compared to Russia, but the positive point for America have a good relationship with their neighboring countries, so America focuses on the water and air defense systems. The Russian army is sustainable in the cold region but they have less experience with high temperatures. Russia needs to practice more with Friend County having high temperature or desert regions for improving their army's high-temperature resistance. Russia has highly equipped with tanks and artilleries for land defense which can be seen in the Russia Ukraine war. Russia should focus on developing active military personnel. China has to improve the mountain climbing skill of the troops as the snow region is new to them, there are some places in the Himalayas where no Arial or road transports are possible. China should focus on improving its air as well as land defense. So China needs to improve all its defense systems as they have a large number of unfriendly relations.

India needs to develop its own artillery production houses to avoid unnecessary expenses on buying artillery. The country has all the seasons as the equator goes nearby the country. The Indian army is adaptable to any climatic conditions as all climates are there in India. India needs to focus on all its defenses as the unfriendly relations with neighbors. Lightweight long-range guns should be used in the mountain regions, for the forest maximum shots guns should be given to the forces. India has one of the biggest military personnel including paramilitary and reserved forces which makes it unbeatable in head-to-head war. As Japan doesn't have a land border with any country the focus of Japan should be on improving its water defense and air defense. The active personal of Japan is very less than other countries as there is less population of the young generation. Thus it can be said that America is at the top in air and water defenses, while Russia has good and developed land defense artillery. India has the highest number of active personnel after China, while Japan has less but highly advanced artillery. The study will help the superpower for analyzing their best and improved defense systems as well the field in which they are lagging and what will be measures taken to improve in that field, to avoid losses of resources.

References

- Chaudhary, M., Prakash, V., & Kumari, N. (2018). Identification vehicle movement detection in forest area using MFCC and KNN. In 2018 International Conference on System Modeling & Advancement in Research Trends (SMART) (pp. 158-164). IEEE. <https://doi.org/10.1109/SYSMART.2018.8746936>
- Farooq, A., Verma, P., & Singla, S. (2019). Stabilisation of dredged soil for road pavement. *Int. J. Innov. Technol. Explor. Eng.*, 8(12), 4976–4981. <https://doi.org/10.35940/ijitee.L3744.1081219>.
- Gatoo, A. H., & Singla, S. (2020). Feasibility of plastic and rubber emulsified road pavements & its contribution to solid waste management in India. *Int. J. Adv. Sci. Technol.*, 29(5), 3890–3899. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084218953&partnerID=40&md5=26ff2b1858c2c10df5ed9cae46bd7cdf>

- globalfirepower. (2022a). Comparison of India and Japan Military Strengths. <https://www.globalfirepower.com/countries-comparison-detail.php?country1=india&country2=japan>
- globalfirepower. (2022b). Comparison of India and United States Military Strengths. <https://www.globalfirepower.com/countries-comparison-detail.php?country1=india&country2=united-states-of-america>
- Goswami, P. K., & Goswami, G. (2020). Truncated T parasite staircase fractal U-slot antenna for multiple advance internet of things applications. *Microwave and Optical Technology Letters*, 62(2), 830-838. <https://doi.org/10.1002/mop.32082>
- Gupta, N., & Agarwal, A. K. (2018). Object identification using super sonic sensor: Arduino object radar. In 2018 International Conference on System Modeling & Advancement in Research Trends (SMART) (pp. 92-96). IEEE. <https://doi.org/10.1109/SYSMART.2018.8746951>
- IASBABUJI. (2022). Neighbouring Countries of India. Names, Map & Border with Neighbours. <https://iasbabuji.com/upsc-study-material/neighbouring-countries-of-india/>
- Mishra, N., Singhal, P., & Kundu, S. (2020). Application of IoT products in smart cities of India. In 2020 9th International Conference System Modeling and Advancement in Research Trends (SMART) (pp. 155-157). IEEE. <https://doi.org/10.1109/SMART50582.2020.9337150>
- National Geographic Kids. (2022). Japan. National Geographic Society. <https://kids.nationalgeographic.com/geography/countries/article/japan>
- quora. (2022). How many countries does Russia border. <https://www.quora.com/How-many-countries-does-Russia-border>
- Sheikh, R. Q., Yadav, V., & Kumar, A. (2020). Stabilization of red soil used as a sub-base material. *Int J Sci Technol Res*. <http://www.ijstr.org/final-print/feb2020/Stabilization-Of-Red-Soil-Used-As-A-Sub-base-Material.pdf>
- Singh, H., Aggarwal, A. D., Kushwaha, V., Agarwal, P. K., Chawla, R., & Sandhu, S. S. (2016). Study of fatal injuries sustained by car drivers in road traffic accidents. *J. Punjab Acad. Forensic Med. Toxicol.*, 16(1), 43-47. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-84984922259&partnerID=40&md5=16aac1e433247fcd7531fc2fe9eb68a1>
- Tesfahun, A. A., & Chawla, A. S. (2019). Risk perceptions and adaptation strategies of smallholder farmers to climate change and variability in North Shoa Zone, Ethiopia. *Management of Environmental Quality: An International Journal*. <https://doi.org/10.1108/MEQ-04-2019-0076>
- topcount. (2022). List of Indian Allies And Enemies. <https://www.topcount.co/list-of-indian-allies-and-enemies/>
- Upadhyay, G. K., Pathak, T. K., & Purohit, L. P. (2020). Heterogeneous ternary metal oxide nanocomposites for improved advanced oxidation process under visible light. *Crystal Research and Technology*, 55(11), 2000099. <https://doi.org/10.1002/crat.202000099>
- youGovAmerica. (2022). Friends and Enemies of the U.S. <https://today.yougov.com/topics/politics/articles-reports/2017/02/02/americas-friends-and-enemies>