SUSTAINABLE SAFETY, SECURITY AND STRATEGIC STRUCTURES IN PRECINCTS OF ANCIENT HINDU ARCHITECTURAL CHITTORGARH FORT, RAJASTHAN, INDIA

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Abstract: The forts have always been attracted to Rulers of the States since Ancient periods. It was a symbol of prestige, Glory, Power of Kingdom or Reign. in contemporaneous ages of civilization. The skill and practice of constructing Forts in India has recorded about 4000 BC. During Medieval period the Rajput clan of Mewar, India, were Prolific builders of various kinds of forts in their mother Land India. The Defensive structures of Forts reflects the Story of Gallantry. Courage. Devotion, struggle and Proud of state & alertness towards Security and safety of Fort Precincts. The study reveals that in spite of better physical terrain Conditions, geographical Landscape and resources, Rigid-intact rocky cliff hillock and strong Fortification structures that Chittorgarh Fort was marked loosing events three times in the history of Siege events by invaders/attackers. It needs detail searches of the causes behind the failure and defeats. In this paper the scientific investigations and interpretation of physical domain of Chittorgarh fort has been carried out the result indicates a stable and sound strategic position in terms of safety and Security of Fort precincts and base station requirements for Military and Garrisons in the Fort. The weakness and pegionholes in safety, security & Defective Defense Strategies were probably the main attributes towards Tragedy Events of 1303, 1535 and 1567 siege and declination of powerful Rajput Rulers in Hindu states of India. The improper management of Fort precincts and Over confident about Worriers & Garrisons Troops were another short comings during attackers siege and battalion. The historical literature citations and descriptions of historians were not cleared the Motto or aim of siege/attacks in logic and integrated manner. It has been important matter to recognize the motto or aim of the attackers/invaders, in the Indian History, since the invaders were not utilized, even after the capturing & looting of the wealth of Chittorgarh Fort for longer period. It is evidenced by the fact in this study that there is no sign of Extra Infrastructure made by Invaders/Attackers in the Fort precincts and the had never been interested to take care of the Fort property. The invaders had also involved the other hired persons in the siege to get the profits/shares in the looted wealth. It create doubt about their motto or aim certainly the hidden aim was only to demolish Hindu Rajput Worriers since they were protector of the Hindus in India. This fact is supported by the Treaty of 1616, when Fort was given back to Rana Amar Singh it was mentioned that “No repair will be made in the Fort precincts.” In Future. The interpretation with logic and evidential supports needed for further reconstruction of events happened in the Ancient historical Fort of Chittaurgarh, India.

Keywords: HILL FORT, ANCIENT INDIA, CHITTORGARH, RAJPUT CLAN, DEFENCE STRATEGIES, HINDU STATES, MEDIEVAL BATTLEMENTS.

A. INTRODUCTION -

The Chittorgarh Fort is one of the largest Hill Fort of India. The Word garh means Fort. It was originally called “Chitrakut”. The Fort has been built by Local Maurya Ruler Chitrangada Maurya in 5th century AD. The legend is related with Pandva Bhima of Mahabharat Epic evidenced by Bhima Kund of a Water Reservoir. The original Occupants/Owner of Fort, except invaders captured period, has been considered as 1. Mauryans of Chittor (5th century) 2. Guhila of Medapata (7th Century) 3. Sisodia of Mewar (13th to 19th century) The UNESCO under World Heritage Site (WHS) designated it as “Hill Forts of Rajasthan” in 37th session (2013) Considering State Party of India, and included in Cultural Criteria Group. The Chittorgarh Fort had been a pride of Rajputana States of Ancient India. The Rajput Worrier Clans had ruled for centuries in Mewar Region of Aravalli Terrain with legacy and Royal status of the Reign. At present the preserved remains of Forts, Palaces and Monuments reflects the story of gallantory, courage, survival, sacrifice, devotion, prestige, Bravery & influence of power over other states in its contemporaneous ages. The biggest Rajput festival known as Jauhar mela takes place every year in the fort by descendents of princely Rajput to commemorate the bravery of Rajput warriors and all three spiritual Jauhars which happened at Chittorgarh. The Forts were equipped with some specific strategic structures to combat the attacks of invaders/battlements/Wars. The design and plan studies of Chittorgarh Fort reveals that the planners and designers were very, cautious towards safety and security of Fort from enemy attacks, even site selection and construction of Infrastructures were largely decided by experienced and skilled personnel/advisors of Military/Artillery. Troops and Worriers of the state. The chronological analysis of events in fort indicates that the invaders/Looter/Attackers had preplanned blue print in their hands where as the Confidential and communication system
was weak in the Fort. The lack of alertness towards preplanned enemies & their strategies of forth coming attack were not imagined properly by the defensive personnels of the Fort. The defective Defense strategies were probably main cause of declination & losing of Fort during Siege attacks by enemies - (Table --)

B. METHODOLOGY -

Under methodology the Survey of India Toposheet no 45 L/9 in scale of 1:50,000 has been used for preparation of a Base Map and profile sections of Fort Hills. The Satellite Imagery of various scales have been interpreted with inductive and deductive reasonings about landscape, Fort Hills, premises, Construction Structures, with limited ground truth. Various literature regarding Rajputana History, defense of Forts, Resources and other themes have been Consulted, cited in the reference and acknowledged.

C. LOCATION AND ACCESSIBILITY -

Chittorgarh Fort is situated on Rocky Terrain of Aravalli-Vindhyan Tract in South Eastern Rajasthan. It lies in geographical longitude 74040' and Latitude 25052' included in S.O.I. Toposheet 45L/9. The Fort lies on a flat topped Isolated Hill with maximum height of 556 m AMSL, whereas surrounding ground level of plain, attains 408m AMSL. It is a district place City, developed on right (Eastern) side of River Berach. The Fort City is accessible by NH at midway between Delhi Mumbai route. The main gate is known as RAM POLE of the Fort, situated towards western part of Fort Hill, accessed by a Hill road of 1 km length. The new town was developed in plains during 1568 AD.

D. CLIMATE AND VEGETATION -

The climate of region is dry, deciduous and prevailing the arid climate. The av. rainfall is 800 mm. anually. The maximum temperature is about 45°C during Summer and minimum temperature is 50°C during Winter period. The mounds and hillocks are covered with scanty, vegetation, shrubs and Trees of Teak and Dhokra Varieties are Common. The insitu black and red soils occurs in the region, depending upon weathering of limestone/shale/sand stone rocks.

E. PHYSICAL CONDITION -SITE SUITABILITY - FORT STABILITY

(a) Landscape, Geomorphic Features and Drainages.

The Chittorgarh region is represented by rocky hilly terrains with undulating topography marked by a number of parallel N.S. elongated ridges of Quartz sites, sand stones separated by small valleys of shales and limestone rocks. Regionally, there are two major surface drainage lines flowing towards NE direction and surrounded the Fort Hill in arcuate shape along the western part. The river Berach follows the lineament of Great Boundary Fault (GBF) and maintain the parallelism with Fort Hill Ridge alignment i.e.N-S. The Gambhiri river is a tributary of Berach river Initially flows towards North and ultimately joins the Berach river in plains below NW of Fort Hill. The highest elevation of the region is 556 m-AMSL, on the Fort Ridge at Kirti stambh, whereas the general ground elevation of plains of city is 400 m AMSL. A total of 156m metre high Hill abruptly crops out with vertical cliff, scarps, and high angle 45° slops make a protective/safe site for fortification. Due to elongated hillock the common drainage pattern of surface stream lines shows Trellis and Rectangular Obsequent pattern governed by geomorphic structure. The streams are ephemeral in nature and dry out in summer period. The Berach river and Gambhiri river are perennial and intermittent in nature respectively.

(b) Rock Characteristics and Terrain Features -

The Chittorgarh region lies in the south central part of Rajasthan which consists rocks of two geological ages. 1. Pre Aravalli Rocks. Berach Granite, Bhilwara shales slates, phylites 2. Lower Vindhyan Rocks. Kaimur Limestone, Suket Shales etc. A distinct unconformity is marked between these two sequence of rocks as evidenced by presence of conglomerate beds and presence of Faulted/Tectonic Contact with pre Aravalli Rock Formation. (ARF). The Great Boundary Fault (GBF) separates these formation which runs through Berach River Valley in the region. Geologically, the Berach Granite is exposed all along Bed of Berach River which flows NW direction in Western part of Chittorgarh Fort Hill. Granite are pink clolured, non-porphyrity, medium to fine grained shows equigranular texture. (2585 my old) The Chittorgarh Fort Hill is occupied by Kaimur Group of Vindhyan rocks. It occurs as Fusiform outline, formed by synclinal Hills of Fort sandstone. The sandstone is hard, compact, 20-60 m. thick belt. It is well exposed at Chittorgarh Fort and Fort is built on this sandstone. The beds of sandstone show N-S strike direction along length of Fort Hill and forms synclinal Hill of doubly plunging fold, dipping towards inside of Hills Main Axis (HMA) which makes the Fort Hill as strong. Intact Rigid, Compact structure, suitable for Fortification and huge constructional Works.

(c) Engineering Properties of Rocks/stones/Blocks -

In the Fortification and construction of super structures of Chittorgarh Fort the Vindhyan Quartzitic Sandstone of Kaimur Group rocks were Utilized. The masonry work includes Fort Walls, Parapets, Bastions, Palaces, Monuments, Roof, lintels, Arches and Foundation of Buildings. The smooth polished Face work in outer walls needed dressed blocks or cut and shaped stone blocks or slabs. The main engineering properties like strength, hardness, toughness and bulk density is important apart from colour and shining of rock surface. In general the sandstone ranges compressive strength H10-2250 with average of 740 kg/cm² and above 1120 kg/cm² the sandstone considers higher strength. The sandstone as a building material the bulk density should be 2600 kg/m². Denser rock Considers as a compact. heavy stones with sp.gr. more than 2.7 The limestone shows Bulk density of 1800-2400kg/m².

(d) SOUNDNESS OF FORT -
In Chittorgarh Fort the rigid and intact isolated Hill provide the physically sound condition of site for stable huge structure. The double plunging synclinal Hill, capped with Fort sandstone (Quartzitic), strengthen the foundation of Super Structure. Effect of erosion and weathering is less due to steep dip and cliffs of hard rock formations. It leads high secured and safe site for fortification and it is easily available in the area as good quality of stone blocks for construction.

(e) Water Resource Availability -

The Fort’s water supply includes 84 water Bodies in Form of. Tank and ponds of which only 22 exists at present. The major Supply of water through Natural lake, Talao, Wells, step wells and bawli, storages in small reservoirs. The surface water bodies fed up with Natural water/Rainwater and stream channels from the catchment area. Fort’s water storage capacity was 4 Billion Litres, about 50,000 Army soldiers can, consume the water for four Years period. Under natural water source a natural spring Gaumukh Reservoir exist, impounded on a Rocky Hill Cliff. It was carved as cow’s mouth sculpture. It is a permanent source of water supply at the Fort. During numerous seiges/Wars it provide water to Precincts residents. Ratan Singh Tank is an artificial reservoir Located at northern end of Fort. It was constructed by Ruler Ratan Singh. At present nearly 3000 peoples utilizes the Tankwater.

F. Safety, Security and Defensive Strategic Structures -

(a) Importance of HILL FORT - In Indian Literature the importance of Hill Fort has been described by Manusmriti and Chanakya in Arthashastra. The Manusmriti considers the Hill Fort to be best defensive structure. The old Sanskrit Literature States Hills forts to be the abode of Gods and hence auspicious. The Arthashastra of Kautilya (Chanakya) in the Indian Treatises illustrates some military strategies of Forts and mentioned six types of Forts depending upon their mode of defense. 1. Water Fort 2. Desert Fort 3. Hill Foot 4. Van or Forest forts 5. Mahi (Earth) Fort 6. Nri Fort (Human fort or city Fortresses) under this classification of Arthashastra the Chittorgarh Fort belongs to Giri Durga or Hill Fort and further categorized as Prantara Durga i.e. located on a Flat Hill Top, which is considered best site for Fortification.

(b) International Recognition - UNESCO recognized the Chittorgarh Fort through World Heritage committee (Cambodia) (Phemous penh 2013), as World Heritage site (WHS) Ref. 1. Example of Rajput military Hill Architecture 2. A Serial cultural property, the Group called “Hill Forts of Rajasthan"

(c) FORT HILL OF CHITTORGARH.

Morphological Characteristics/Configuration -

The Fort Hill rises (556 m AMSL) abruptly from the surrounding plains (400 m AMSL) The Fort Hill shows elongated elliptical shape configuration, stretched nearly in N-S direction, having 8.7 Km length and av. width of 1.6 km. whereas the Fort precincts is spread over an area of 2.8km2 (1.1 sq. miles) or 280 hectare (700 Acres). The fort lies on the Flat Topped region of Hill about 136 metres (430 feet) above the Surrounding plains of Township. Gambhiri river (410 m AMSL) encircled half of the Hills bottom peripheries in the West flank which ultimately joins Berach river towards North tips of Hills in ground level (400 m AMSL) The Berach river is a tributary of Banas river which follows the Great Boundary Fault (GBF) Tectonic Lineament of the Aravalli region. The Berach river is a tributary of Banas river which follows the Great Boundary Fault (GBF) Tectonic Lineament of the Aravalli region.

Fortification Configuration - Precincts Dimension - (Layout) -

The fortification configuration resembles oblate, elongated elliptical in shape and oriented nearly N-S direction (N8°W- S8°E). It has a circum ference of 13 km (81 mi) with length N-S of 5 km (3.1m) width E-W 155 metres. It covers an area of 700 Acres. The direct access and route to the Fort is made from plains Via a road crossing over limestone paved Bridge (Ten Arches) in river. In Fortification the component site covers 305 hectare area whereas the buffer zone lies about 427 hectare. A total 732 hectare of 7.32 sqkm. flat area on hill top. available for expansion.

Fortification style -

The Chittorgarh Fort had been built on the basis of Hindu Architecture. The fort has coarse Ramparts with multilayered fortification. The precincts of Chittorgarh Fort walls of 15’ (4.5m) to 30’ (9.0m.) are common Evidences of Medieval period exists in the inscriptions found at Chittorgarh. The earliest Gihila inscription has mentioned “Chitrakuta - Maha Durga” - Mid 13th century Reign of King Teja simha. There are two phases of fortification of Fort Complex. One main entrance to Hill Fort was established in the 5th century AD by Mauryan kings. The Gihila Ruler Bappa Rawal had captured the fort during 1st phase of Fortification. (728-734 AD) This ruler was a part of Army of Nagabhatta, who carried out fortification & design of palaces. The first phase of construction and fortification were carried out successively until the 12th century. In second phase the most significant Defense structures (Gates) were constructed during Reign of Sisodia Rajput rulers (15th century AD) They had made more important Defence structures (U.G. Basement. Vault) with relocation of Royal Entrance and fortified with seven Gates which are exist at present. Also the medieval fortification and architecture of Palaces were built as additional work on existing walls during 13th century. The remains of ruins are visible on the Western edge of Hill top.

Construction Materials Used -

The walls of the Fort were constructed with integrated circular enforcement using DRESSED STONE MASONRY with lime mortar. The Fort walls with length of 14.5 km at Hill rise of 550m AMSL and seven massive Stone Gates were constructed. It

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is flanked by hexagonal or Octagonal Towers. The access of the Fort is restricted via a narrow pathway. The steep hill Climbs through successive narrower passages.

G. DEFENCE STRUCTURES OF MILITARY IMPORTANCE

(a) GATES (GATEWAYS) -

Gates provide security to the fort precincts from invasion or enemy attacks apart from the safety of wealth & Treasury. The plan and design of Gates comprises strategic elements. These were built with Huge blocks of massive stone construction. The pointed Arches protect the gates from Cannons and the elephants of invaders/enemies were unable to push the Gates during war. The parapets were also constructed for the Archers of the Fort to Shoot arrows on attackers. The parapets support the archers and acts as protection shields.

The Chittorgarh Fort was built in 5th century AD with only one Entrance Gate. The Sisodia Rajputs Kings renovated the Fort and Built six Gates in 15th century AD. The major Gates are 1. padan pol 2. Bhairav pol 3. Hanuman pol 4. Ganesh pol 5. Jodala pol 6. Laxman pol & 7. Ram pol. The Ram pole is named on Lord Rama. The ancestors of the kings of mewar were the descendants of Lord Rama. The height of tower is about 37 metres. The images of Hindu Gods. Weapons and war scenes had been carved on the walls of Tower. The city and skyline can be entered through Suraj pole. The council chamber or sabha lies on right side of Suraj pol. The Ganesha Temple and Zenana (Women’s Residence/quarters) Constructed in the left of this sabha Building. The famous battle gate ways are -

(i) Padan Pol - It had named from Rajasthani language Patni means eldest or First. It is the area of battlement or place of war & defends against enemies or invaders in past.

(ii) Bhairav pol - It is also known as Fateh Pol & second Gate of Chittorgarh Fort. It had important place during battlement.

(iii) Jodala pol - Means double gates or Joint gates. It is the 5th Gate of the Fort but it is connected with the 6th pol. This is a unique feature of Gate configuration in Indian Fort design. The upper Arch portion of Jorla pol is connected to the base of Lakshman pol. (A Dual Gate)

The Gates defense the accessibility to reach the higher/upper level segment/portion of Fort. Only the Seventh and final Gate leads directly approach into the palace area, which comprises various Residential and official structures.

(b) Vigilance Tower - Vijay stambh -

It is a 9 (nine) storied Tower built by Maharana Kumbha in 1440 in the occassion of victory over invaders/attackers of Malwa/Gujarat. The height of tower is about 37 metres. The images of Hindu Gods. Weapons and war scenes had been carved inside walls of Tower. The city and surroundings of Fort is visible and Surveillance made from Tower (Observation tower). There are sculptures and carvings on outer (exterior) walls of Tower, which reflects the cultural practices and heritages of, Rajputana period of Indian history. The dimension of tower has 122 feet height, based on 47 squarefeet(4.4m²) rectangular base. The upper dome Structure is an additional cover made during repair in 19th century. It has 157 steps Stairs to reach the Top of the Tower. Nearby the Rana Kumbha palace situated which is the birth place of Maharana Udai Singh. (Founder of Udaipur), Stories of Panna Dhai, Krishna Devotee Rani Meera, Rani Padmini, Rani Karnavati, is famous and Prestegeous in Hindu Indian history, Culture and heritage. The construction of Canopied Balconies are peculiar Architecture of this palace. The Rana Kumbha palace is also witnessed many battlefield and siege for the capturing of Fort by the invaders. It is now ruined in condition but it has assimilated several historical events of Chittorgarh Fort.

(c) Garrison/Arsenels -

In the fort a number of underground vaults, Storage underneath the Palaces were Constructed for Garrisons and Arsenels, cannons, Archery, Stone balls etc. Some cannons lies in fort at present which is a evidence supporting the Amusement of Fort. During IIIrd siege about 1000 musketeers defend the attack.

(d) Elephant House/stables -
H. MAJOR SIEGE AND BATTLEMENT STRATEGIES OF CHITTORGARH FORT-

Strategically the Chittorgarh Fort was not very easily captured by invaders/attackers. The Chittorgarh is the finest Medieval Hindu Fortification and it was built in Hindu Rajputana style and considered as complete Fort of Hindu Rajputs. The 9th century Hindu Chronicle Khaman Rasa had described the fort of Chittorgarh as the Chief amongst 84 Castles/Fortresses of Mewar and it was the symbol of Rajput resistance. The fort has natural defense, feature of landscape provide defenses and made it difficult to attack the Fort by enemies. The Major Siege and battlement of Chittorgarh Fort and events has been described in Table (IV) The interpretation of data and details are based an various articles. literature and websites regarding battlement and conquest. The major causes of defeat have been analysed with reasoning. Most of the Rajput states kings and chief tans were surrendered before Delhi Sultanate in lieu of money protection and other reasons they were internally acted against the Mewar state.

(i) Rajput Perspectives on Battlement - The absolute belief and willingness to die in battle for the Hinduism religion belief and freedom. They were fought for Hindu reign and prestige of the state. The spirit of self sacrifices for cherished principles were prime priority.

(ii) Fair Play of Rajputs in Battle - The Non-Hindu Attackers/invaders were feared from the lonely independent Rajput Hindu Kingdom of Mewar. It is considered that Rajput of Mewar were descender of Lord Rama’s son Lava and kusha of Ramayana period of Ancient India. The Rajputa belongs to Khatiya (Worrier Caste, Second tier of Hindu Caste System) Who had lived during Vedic period (between 1500 BC) as Aryan. Settled in Indian Subcontinent. They were governed by Chivalric Worrier Code of Conduct. They were generously to wards helpless, Fair play in battle, respect to women and war fare conduct by elegant form. Also the Rajputs were renowned for their courage and performance in the battle field. They had Martial Tradition and passion for war but their internal Jealousy and inclination of some Rajputana states towards Delhi sultnate became harmful for their existence and sovereignty of state.

(a) 1st Siege of Chittorgarh (1303) - The Chittorgarh Fort was attacked in 1303 (Jan-Aug. 1303) by Delhi Sultanate Ruler. The battle was sought against Guhilas of Medapata Ratna Simha, who ruled in the Mewar region. In 1301 the Ratna Simha ascended the throne of Chittorgarh (Table - III)

(i) Battle Site - The invaders set their camp between Berach and Gambhir river in plains i.e. Doab zone. The main station of Camp was located at north of Illoco & Fort on 28th January 1303.

(ii) Siege Operation - The duration of siege was along tenure of about 8 Months, it proved the strong resistance of defenders Fort. The direct frontal attacks were made two times but invaders were not succeed, even they had not reached to the waist of the Fort Hill. They had tried to throw stones from siege Engines (Munjanigs) and armoured soldiers attack all sides of the fort.

(iii) Fort’s Garrisons and Defense of Fort - The Garrison of the fort was equipped with armoured soldiers, but they had suffered from famine or epidemic effect and ill in last phase of siege. They were not capable to fight against enemies. A few worriers were saved their life from illness during rainy season.

(iv) Battlement of Ratna Simha - On 26th August 1303, the Ruler Rama Simha decided to open the door of Fort and Fight against the invaders. According to Munhot Nainsi (17th century Chronicler) States that the Ratna Simha died on the battle field. Also the Kumbalgar Prasaisit (eulogistic inscription) (dated 1460 AD) States that Ratna Simha “departed” (Tasmin gate in Sanskrit) From the field. After which Laxaman Simha took the leader of defender and died defending the Fort. All the worries of the fort were fight and died during battlement.

(v) Act of Jauhar - During warfare against Non-Hindu attackers the extra ordinary phenomenon happened in Medieval Ancient India was the act of Jauhar performed by Hindu Rajputana Royal Women & allied with fort palaces. The Rajput Rani Padmini with other royal women decide to take spiritual funeral pyre of Jauhar in Traditional Prestige & Devotion to the mother land. It has been supported by the legendary poem and further became the tradition of the Royal Hindu Rajputana states of Medieval Period. It was happened in the old Kumbha Palace Underground Cellular Secret Chambers. It proves the encourage and prestigious position of Hindu Rajput Clan and devotion towards Mewar state motherland living with glory and “Aan Baan & Shaan” No fear to take self immolation for the sake of Hinduism, clan prestige and devotion towards motherland. Commonly the historian and Chronological writers were not interpreted the real events happened in the battle, Fort and motto, act performed and immortal thoughts of Royal women. There were quite different and super natural power had been generated automatically when they admired their spiritual traditions of Hinduism. The Rajput women were never feared about the enemies/attackers. It was proved in the second siege when they promote/encourage their family members to fight against the enemies death. Patta’s mother and her daughter in law were fight in the battle with swords & weapons, at the Gate of Chittorgarh fort. At the 1st siege end no Hindu was remain in the fort all were died.

(vi) Cruelty of Attacker/Invader - After conquest the attacker were made massacare of Hindu Cantinas and servants of fort & palaces. The innocent persons were killed with cruelty and inhumanities. It Proves the religion attacks against Hindu dynasty. In battles and wars the common peoples were not murdered/killed by any of the warriors/attackers. The historians and contemporaneous legendary poets were also taking such kind of brattles in the category of Braves. The real events and performance should be needed in reconstruction of happening in the Indian history. It was to religions conflict rather than
the expansion of state of Delhi Sultnate it was proved by the massacre of Hindu civilian of mewar state. According to 16th century Chronicler Firista states Ruler of Chittorgarh Rebelled & sultnate positioned the soldiern in the fort. & Maladeva take care the fort and around 1321 the fort was controlled by Hammir Singh (Sisodia). The evidence of Inscription 1310 AD shows imperial garrison was maintained at Chittorgarh and Maldeva Chieftain was caretaker after fort.

(b) II\textsuperscript{nd} Siege of Chittorgarh (1535 AD) - The second siege against Chittorgarh was held by the attack of Gujara Sultnate in March 1535. The Rajput Worriers and Chittorgarh Mewar State Ruler follows the I\textsuperscript{st} Siege defence pattern.

Army strength of fort. About 3200 soldiers opposing the invaders and died during fighting in battlement. The Strength of Mewari Army was 7338 Soldiers including the Garrisons of Fort and Armoured sepoys. Invaders Strength were 5 times more than defenders and they were lessed with Gun powder and weapons. After battlement no Hindu was remain in the Fort. All were killed by the invaders. Rajput Rani Karnavati wife of Rana Sangram Singh, adopted Jauhar with. Royal Women, the spiritual act for the devotion and proud of motherland.

(c) III\textsuperscript{rd} Siege of Chittorgarh (1567-68) - Rajasthan was the prestigious kingdom of Mewar during this period. The Mewar kingdom was attacked in Chittorgarh by the Delhis Ruler. He was illiterate (Ref. 15) The duration of Invaders Camp was a long tenure (20 Oct. 1567-23 Feb. 1568). In 1567 Rana Udai singh II was the Ruler of Mewar. He was a weak and incompetent king although the Prince and commanders were great Rajput Worriers.

(i) Military strength of Fort - The military strength of Fort comprises about 7800-8000 soldiers and 1000 musketeers. The Princes Jaimal and Patta (15 & 16 years youth) were the commanders of Worriers, as Maharana Udai Singh II left the Fort and went to another fort at Gogunda.

(ii) Garrisons - The Forts garrison comprise with about 8000 soldiers/Worriers and 40,000 peasants/civilians. were prepared for a long duration. It had well stocked supply of ammuntions, Grains, food and other amenities, more than sufficient fire powder, Archers, corps, crack musketeers, artillery weapons.

(iii) Attackers Army strength - They had a big mob of soldiers including 5000 masons, carpenters, soldiers with Swords and Lances, matchlocks, bows and archerries. 3000-5000 Horse and riders, 300 war elephant and Mahavats, about 80,000 Strength total person including psuedo soldiers, combined in the army from professionally looters, criminals, other sappers. smooth emitruct siege engine, wall breakers, and laboures mine to fort wall.

(iv) Siege and Battlement strategies by Attackers - It was not easy to plan the attacking and destroy the Chittorgarh Fort. Following steps were taken in their strategic plan -

1- Reconnaissance survey - One months reconnaissance survey was carried out for the selection of Battery Spots, Trenches, mines to destruct the Fortwall. 13 principal localities had been selected for attack. They had launched reckless direct assault along the mines but Garrisons of the Fort had dischaged a heavy toll on them.

2- Stone Mason - Constructed the passage and ways; Construction of “Sabat” i.e. sinuous sheltered passage way constructed to keep out of gunshot range and reach the Forts wall of Chittorgarh.

3- Destruction of fort walls - The attack on wall of the Fort was continued through Cannons and mines of gun powder blastings. The tunnels and trenches were digout by the masons, workers. About 200 mason and workers were killed by Forts defenders/ Artelleries/Marksmen, per day but they continued to trench the earth every day by new workers. Since attackers had a large number of such kind of workers with them.

4- Target to destroy Royal Battery of Fort - The attackers were mined two spots nearby to the wall of Fort and filled with large quantity of gun powder. Extensive width of Trenches developed, about 10 Horseman could ride along with it and height of the elephant with his spears in hands could pass under it.

5- Mines of Fire Powder - On 17th Dec. 1567 two mines were exploded but only one was able to destroy one Bastins & it was blow up with Little damage and the fort defenders were repaired it very shortly. But workers were kept going on trenching by the giving levish gift of gold and silver coins by the attackers. The one thousand musketeers of fort were actively defend the Fort. In a repetative way the walls of Fort were made quick repair by the defenders and demolished part were restore again strong wall. Actually the Attackers efforts was failed since small opening holes were generated & it was filled again by the Forts care takers.

6- Use of Siege Engine - The siege engines were deployed with sappers constructing open saps and digging tunnels to explode the mines. After two months they had made only few breach holes below the outer fort walls. The reaching to fort walls and sap beneath the fortified outer walls was failed by the Musketeers and caretakers of Fort defenders.

The invaders strategy was not very clear and they had reached only to the walls of the Chittorgarh Fort after 58 days (i.e. 2 months). Then one mine was exploded and very small portion of the Fort wall breached but defenders soon sealed the openings. On night of 22nd Feb. 1568 at many locations attackers tried to make holes but they did not get succeed to make severe damage to Forts wall of outer Circum ferences, even after 3 months of Siege and continuous the invaders were failed to reach the fort through breakage of walls. It proved that the Chittorgarh Fort as Strong Fort of Mewar Kingdom.

(v) Rajputs Decided for Battlement and Open War -
On Tuesday, 23rd Feb. 1568, the Rajput Worriers donned Saffron clothes and made a final flight rackless without fear of defenders strength of 80,000. The warfare had been fought by Defenders under commander Prince (i) Rao Jaimal of Badnore and (ii) Rewat Pata Sisodia. The Rajput were decided to fight against invaders directly, they opened the Door of Fort and made Jaighosh “Bajrang Bali ki jai” They were fight with weapons and musketeers guns. At the same time Jaahur of Rajputana Women were made at Patta House and Havelli of Aissar Das. The battle was stacked on dawn of 23rd Feb. 1568 morning continued till the death of all Rajput Worrien of the Fort. The invaders captured the Fort without any oppose since no Hindu remain there. The civilian and peasants were also killed by the massacre of rebellions and attackers, they looted the Wealth of Royal treasury and common peoples.

(vi) **CHHITTORGARH AFTER 1568 -**

The enabled Udaip Singh II became Rana in 1541 and reside at Chittorgarh Fort. He was a weak king during siege Udaip Singh II and his small followers took as refuges they were helped by aboriginal Hill Tribes of Aravallis and later founded the City of Udaipur. His son Rana Pratap Singh was the Ruler of Mewar. Five years later in 1572 he followed the Gurelita warfare for next 25 years (1597 AD). Maharana Pratap born is 9th May 1540 at Kumbhalgarh Fort and crowned king in 1572. He gathered his allies as the Rajput Army had been totally destroyed in the Battle of Chittorgarh (1568). He was the 13th king of Mewar. Except his father Udaip Singh II almost all major kings/ Chieftains of Rajputana had declined and occupied by the Delhi Sultanate suzerainty.

(vii) **Maharana Pratap Mows and Chittorgarh -**

Maharana Pratap made his descenders vow, Until the Chittorgarh had been regained 1. Not to sleep on beds 2. Not to live in Palaces & Not to use luxurious livings 3. Not eat on the Royal metal utensils/use of leaf Platter. Maharana Pratap had adopted a True Rajput Perspective “Absolute Belief and Willingness to die in battle for the Hinduism Religion and freedom of the state. The spirit of self sacrifices for Cherished Principles and Rajput Valour were Prime Priority, The methods of Sporadic warfare before by Maharana Pratap was elaborated and later Gurellia war fare was followed by Shivaji Maharaj’s Hindu Kingship even the 20th century descenders of his clan Maharana of Mewar continued to place a leaf platter under regular utensils and reed mat under their beds in symbolic Continuation of this bow of Maharana Pratap.

**Treaty of 1616 -** The son of Maharana Pratap was. Amar Singh I, who surrendered to Delhi Sultnate and Under treaty of 1616. with Delhi Rulers, the Chittorgarh Fort was returned back to Rajputs with the conditions that “It will never be repaired”, Not to build the structures and Chittorgarh was abandoned,

I. **DISCUSSION & CONCLUSION -**

In spite of better physical domain and terrain conditions, the strong fort Chittorgarh was repeatedly defeated/Siezed by invaders/attackers in past history was merely a defective Safety, Security and Defensive Strategy of Forts protection. It needs further searches in detail investigation of facts. One of the major cause of defeat was probably due to lessor number of warriers with Rajput kings, although the Fort had capacity of ~50,000 Worriers could reside for 4 years, but it was never reached to such strength of military power within Fort Defense Services (FDS) The unstable political alliances and Continuous battles in India, the Rajput worrier get tired during 15th and 16th century. It resulted, the lessor number of soldiers available for military/artillary power. The other cause which determined the battlement result was the infra jeoulesy of rajputana states, they did not get any help support externally to the fort warriers at time of defends and battlement, it indirectly supports and benefitted to the invaders. The act of fortress management was not well planned to combat the adverse situation rises during attacks by invaders it is evidenced by the fact of chronological order that within short span of time (32 years) between attacks of II⁴ and III⁴, siege against Chittorgarh fort. The wealth and Reserve stock resources were sufficient in the fort but with small number of warriers/musketeers it was not possible to win & overcome the mob of 80,000 men powered army of invaders in III⁵ siege. In reality the aim and target of attackers was to loot the wealthy and rich fort/treasury & spoil the rajputana’s prestige. It is supported by the fact that invaders combines many looters, and professionals in their army i.e. pseudo soldiers: it was generated a mob leaching practice. instead of real battlement it is evident by the fact that No Hindu remain in the fort and the township of civilians after conquest. The massacre of Hindu inhabitants of fort by the attackers invaders was not a battlement. It was the murder killing of 30,000 innocent common peoples. since there were no need to kill the all Hindu civilians it appears by their act that they were suffered with chronic psychomadness, and extortion/cruelty were created by them. It require searches in detail about their mode of trend during attack and after conquest activities. The Indian historians have generally adopted the narrations wrote by Darbari/poets to the Empire in the praise of kings, particularly in case of Delhi Sultnate who was illiterate. Also after it is devoid of proper reasoning and the justification of events happened in the past. it needs further rectification and reconstruction of doubtful situations described by earlier historians in the light of systematic searches of physical domain, inherent quality habits of rulers, Archaeological evidences and historical monuments/structural features of the kingdom and their influence areas. It comprises inscriptions, plates, authentic contemporaneous literatures, which are strong evidences during reconstruction of facts/events happened in the historic past. The pattern of battlement changed during Maharana Pratap reign after 5 years of III⁴ siege. the Gurelita pattern was successful for long term basis. It was also followed by Shivaji maharaj of Maratha Empire in Indian Hindu history. The integrated approach towards the chronological facts of reality is necessary and it will be helpful in research of events happened in Indian Hindu history.

**Table - I**

Geological Succession and Geomorphic Zones of Chittorgarh Fort Region. (Terrain Features) (Based on Remote Sensing data) with Limited Field Checks

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<table>
<thead>
<tr>
<th>Geological Age</th>
<th>Rock Types</th>
<th>Geomorphic Unit zones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pleistocene &amp; Recent</td>
<td>Alluvium and Soils</td>
<td>River Beach &amp; Gambhiri, Flood plains, Alluvial zones buried pediment low ground plains.</td>
</tr>
<tr>
<td>Vindhyan Supergroup (Proterozoic)</td>
<td>Kaimur Gp.</td>
<td>Flat topped Hills, scarp</td>
</tr>
<tr>
<td></td>
<td>Semri Gp.</td>
<td>Undulating plains, valley area, thick soil buried pediment zones, mantle, low, ground plain zones</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non Conformity</td>
</tr>
<tr>
<td>Archeans</td>
<td>Berach Granite/BGC Supra Crustal</td>
<td>Basement Rock cut surface, pediment zone exposition berach deepenings</td>
</tr>
</tbody>
</table>

### Table - II

**Civil Engineering properties of Rocks (Av. Values)**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Type</th>
<th>Rock</th>
<th>Compressive Strength KN/M²</th>
<th>Shearing Strength KN/M²</th>
<th>Range of Toughness Av.</th>
<th>Wt. KN/M³</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Sedimentary</td>
<td>Sand stone</td>
<td>50,161</td>
<td>11340</td>
<td>10</td>
<td>22.5</td>
</tr>
<tr>
<td>II</td>
<td>Lime stone</td>
<td>67,515</td>
<td>9151</td>
<td>07</td>
<td>23.2</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>Shale</td>
<td>54,603</td>
<td>8910</td>
<td>06</td>
<td>26.3</td>
<td></td>
</tr>
</tbody>
</table>


### Table - III

**Possession of Chittorgarh Fort in Ancient India**

<table>
<thead>
<tr>
<th>No.</th>
<th>Fort owner/king/clan</th>
<th>Historical Period</th>
<th>Archaeological Inscription/ Monuments</th>
<th>Possession of Attackers/Invaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>I A.</td>
<td>Mauryan Ruler &amp; Successors</td>
<td>5th - mid 8th Century AD</td>
<td>1.) 9th Century Buddha small stupas &amp; Script near patta Lake 2.) Inscription of Gohila “Chittrakut Maha Durga”</td>
<td>8 years (1303-1311)</td>
</tr>
<tr>
<td>II B.</td>
<td>Gohila Ruler</td>
<td>Mid 13th Century (about 1250 AD) upto 1303 AD</td>
<td>1.) 9th Century Buddha small stupas &amp; Script near patta Lake 2.) Inscription of Gohila “Chittrakut Maha Durga”</td>
<td>8 years (1303-1311)</td>
</tr>
<tr>
<td>III C.</td>
<td>Songira Chief Maldeva</td>
<td>1311-1318</td>
<td>7 years possession (Hindu Chieftan)</td>
<td>May 1310 dated inscription Shows imperial Garrison Chittorgarh</td>
</tr>
<tr>
<td>IV D.</td>
<td>Sisodia Ruler (Sisodia - A Village name)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>8</td>
<td>Rana Sanga (30th Jan. 1528) (Rana Sangram Singh)</td>
<td>1508-1528</td>
<td>strongest Rajput king rises the power of Mewar (poisoned by his non chiefs)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Ratan Singh II</td>
<td>1528-1531</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Rana Vikramaditya Singh (Bikramjit Singh)</td>
<td>1531-1536</td>
<td>Escape of Rana and his brother Udaï Singh II to Bundi</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IIInd Seige/Battlement-Invaders Attack-by Malwa Ruler 1535-1536</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Vanvir Singh</td>
<td>1536-1540</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Udaï Singh II</td>
<td>1540-1572 upto 1567</td>
<td>Escape of Rana to Gogunda (1567) A weak Ruler</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IIInd Seige/Battlement (1567AD) Invader/Attacker-Delhi Ruler-1568-1616</td>
<td></td>
<td>48 yrs under attackers</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Successors of Sisodia Maharana Pratap Singh I</td>
<td>1572-1597</td>
<td>Great Worrier of Rajputana Maharana Pratap Singh never hold the fort</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Amar Singh I</td>
<td>1597-1620</td>
<td>Under Treaty with Delhi Ruler Chittorgarh was given back to Rajputs “clause - Not to Repair the Fort” (1616 AD) Repair the Fort” (1616 AD)</td>
<td></td>
</tr>
</tbody>
</table>
### Table - IV

**MAJOR SIEGE AND BATTLEDGE OF CHITTORGARH FORT**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Years/Duration</th>
<th>Invaders Army Attacks</th>
<th>Fort Defender</th>
<th>Loss/Damages/Events</th>
<th>Causes of Failure of Defence/Strategy and Defeat.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>During Battlement</td>
<td>In Forts</td>
</tr>
<tr>
<td>I</td>
<td>Siege of 1310 AD 8 Months Delhi Sultanate (Turley) Army Power (40,000) + Permanent 5000 + Hired 3500</td>
<td>Siege of Delhi Sultanate (Turley) Army Power (40,000)</td>
<td>Sifah, King Padam (2500 Sepsy)</td>
<td>2500 Women (Fight &amp; Die) Use of Archesian Elephant, Sword Horses,</td>
<td>Hindu Rajput Rani Padam Consigned here to spiritual act of JAHUR at U.G. Cellar, Palace with 1000 Women (Hindustani) Loo, Ruined old Rana Kumbha Palace</td>
</tr>
<tr>
<td>II</td>
<td>Siege of 1536 Gujar Ruler Army Power 58,000 Soldiers about 40,000 Hired.</td>
<td>Siege of Delhi Sultanate (Turley) Army Power (40,000)</td>
<td>Singh (Kataragud) 3200 Soldiers</td>
<td>3200 Women (Fight &amp; Die) Use of Weapons Archesian Elephant, Sword Horses,</td>
<td>On 8 March 1536 Rani Karnavat and about 13000 Rajput Women Committed Self immolation (Feral Pyre) i.e. JAHUR, Famine Docent to state and Rana with his brother Joda Singh Escaped to Bund.</td>
</tr>
<tr>
<td>III</td>
<td>Siege of 1657 Delhi Ruler 4 months (Oct. 67-Feb 59) with 60,000 Army Power only 10,000 Soldiers were from Delhi about 70% were hired soldiers of looters in the Army.</td>
<td>Siege of Delhi Sultanate (Turley) Army Power (40,000)</td>
<td>Troops of Ruler (Sigh II - Jagraro and Patra's) on behalf of Rana King 8000 Soldiers 1000 Musketeers</td>
<td>8000 Women with 1000 Musketeers (Fight &amp; Die) Use of Weapons Cannons, Archesian Elephant, Sword Horses.</td>
<td>About 8000 Ragutuana Royal Women were Committed JAHUR in the House of Patha, Assas Dass the Charatro Haveli's basement, Rana escaped to other place At present Data House is in ruins evidenced by double Story Big Tower etc. with basement</td>
</tr>
</tbody>
</table>

*Source: Interpretation of Data & Details based on Various Article literature & websites.*
FIG. I – CHITTORGARH FORT (HILL FORT) (Fortification style=layered)

FIG. II - CHITTORGARH FORT HILL TOP FORT
FIG. III (a) – MAJOR DRAINAGES & TOPOGRAPHY OF CHITTORGARH FORT
FIG. III (b) LONGITUDINAL PROFILE OF CHITTORGARH FORT HILL, INDIA

FIG. III (c) TRANSVERSE PROFILE OF CHITTORGARH FORT HILL, INDIA © Author 2020
FIG. IV - CHITTORGARH FORT – RIGID ISOLATED HILL, Plains, lowlying area, Agricult Field Fort Bldg. (Satellite based Map) © Author 2020
FIG. V – LANDSCAPE AND RIGID – INTACT CHITTORGARH FORT HILL

FIG. VI (a) CHITTORGARH FORT GATEWAY (Safety / Padan Security Point)
FIG. VI (b) CHITTORGARH FORT GATEWAY (Safety / Security) Jodala Pole with Laxman Pole

FIG. VI (c) CHITTORGARH FORT GATEWAY (Safety / Security Point) Bhairav Pole
FIG. VII – FORTIFIED WALL AND WATER SOURCE © Author 2020
FIG. VIII (a) – CHITTORGARH FORT MONUMENT DESIGN Architecture Design

FIG. VIII (b) – CHITTORGARH FORT – Canopid Balcony (Architecture)
FIG. IX (a) ANCIENT MONUMENT (Kumbh Palace under Ground Way Cellar in Ruins) (1303AD) Witnessed the Siege I – (Spiritual Jauhar Rani Padmini)

FIG. IX (b) Ancient Monument (Patta House) Chittorgarh Fort

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