



Fig. 1. Kornati Islands - remains of Byzantium fort Tureta (approx. from the 6th cen).



Fig. 2. Aerial views of fortress in Osijek (1712) today.



Fig. 3. The George III fortress (Juraj), Island of Vis (English built in 1812 or 1813).

Fortification architecture in Croatia: protection, redevelopment, management

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Centuries of historical events on Croatian territory have left a legacy of distinctive architectural heritage that includes diverse group of cultural and historic buildings. Specific types of that structures include defensive systems from almost all historical periods. The earliest defensive structures have been preserved mainly in the archaeological layer. Numerous material evidences reveal complete defence systems (eg. from the Byzantine Empire and the Middle Age), built on islands or river banks to protect ports and major roads. In the group of the Middle Age forts should be allocate lowland fortresses whose important defensive element is water (marshes, bayou, defensive trench filled with water, from 16th till 18th cen. system of water ditches was developed). Greater attention is drawn to the coastal forts along the Adriatic coast and fortified settlements in its hinterland, built or modernized under the influence of foreign models. Especially worth of attention is the system of fortifications which was built in the 16th cen., on the eastern borders of the Habsburg Monarchy and Venetian Republic with the Ottoman Empire as a defence system from the Turks. Very interesting are forts built by the Ottomans in the conquered

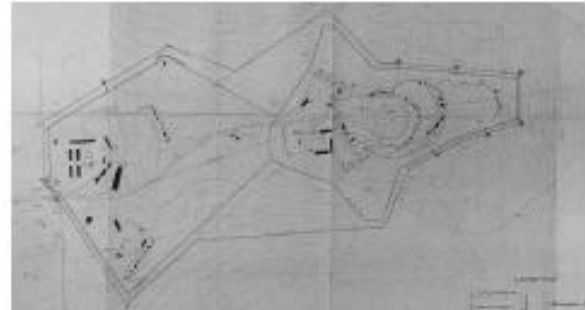


Fig. 4. Military complex Svetica (Monte della Madonna), in Šišan near Pula (1915-1918) - situatio.



Fig. 5. Map of the main naval port of Pula (from E. Von Steinitz, T. Brosch von Aaerenau: "Die Reichsbefestigung Österreich-Ungarns zur Zeit Conrads von Hötzendorf", Österreich-Ungarns letzter Krieg, Vienna, 1937).



Fig. 6. Fort Bourguignon in Pula (1852-1866).



Fig. 7. Fort Verudela in Pula (1881-1886), new function from 2002, City "AQUARIUM".



Fig. 8. Aerial views of fort "Brioni Minor" on Island of Mali Brijun (end of 19th and beginning of 20th cen.).

areas, which were later modernized by Venice and Austria, and also works built by the French, English and particularly Austrians in the coastal area. The most magnificent is the Pula fortress belt system, built in the 2nd half of 19th cen. to protect the main Austrian naval base and naval port. Due to the increasing destructive power of aviation, independent fortresses were replaced by completely new developed systems of bunkers, shelters, observation posts and other military facilities, networked by special communications. Such areas are organized as fortified districts for a long-term defence. The geo-strategic position of the Croatian territory and political situation after the WW I required the improvement of the existing, or development and construction of new defence systems. After the WW II, along with the further improvement of conventional weapons, and the emergence and development of missile and nuclear weapons, they create a new point of view on the role and method of construction for defense systems and thus the historical systems falling into oblivion. From the rich opus of modern time fortifications, the systems whose parts were continually put into some function are relatively well preserved,

particularly those which were located in military zones after WW II. However, the most of them have been abandoned while a small number has been adapted for other purposes. This specific historic heritage in Croatia has faded out in the focus of attention of military didactics, and has been neglected in our scientific research. Therefore, its systematic expert registration is largely deficient, especially the records of more recent fortification systems (19th cen. onwards), which were or still are in special purpose zones. Despite mentioned difficulties, experts from the service for the cultural heritage protection initiate register proceedings and protection of the most endangered fortification heritage which is carried out (according to the methodology by the Zofia Mavar established in 1986 at Pula fortress) in several stages, especially since 2001, during the International workshop of fortification architecture. Participants are expert leaders with students of different profiles, depending on the scheduled tasks planned in the program, which is determined according to the situation and needs of the National Park "Brijuni". The participants work in small groups, under the leadership of experienced experts, and each has different

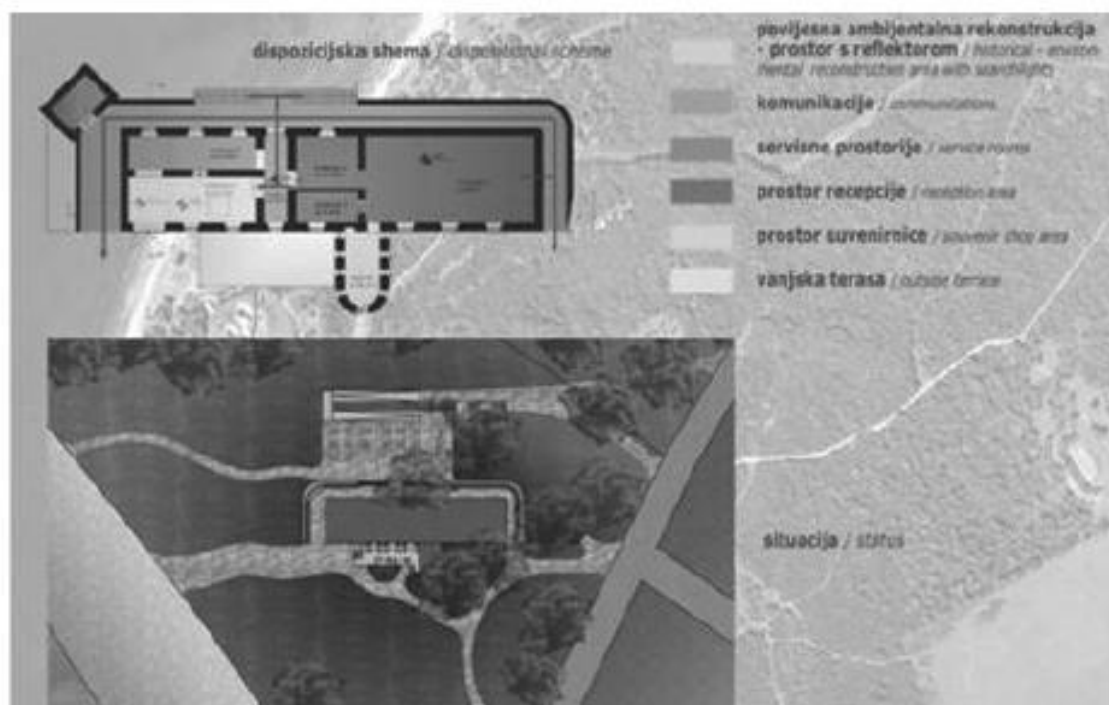


Fig. 9. One of the tasks is the preparation of a draft reconstruction and development.

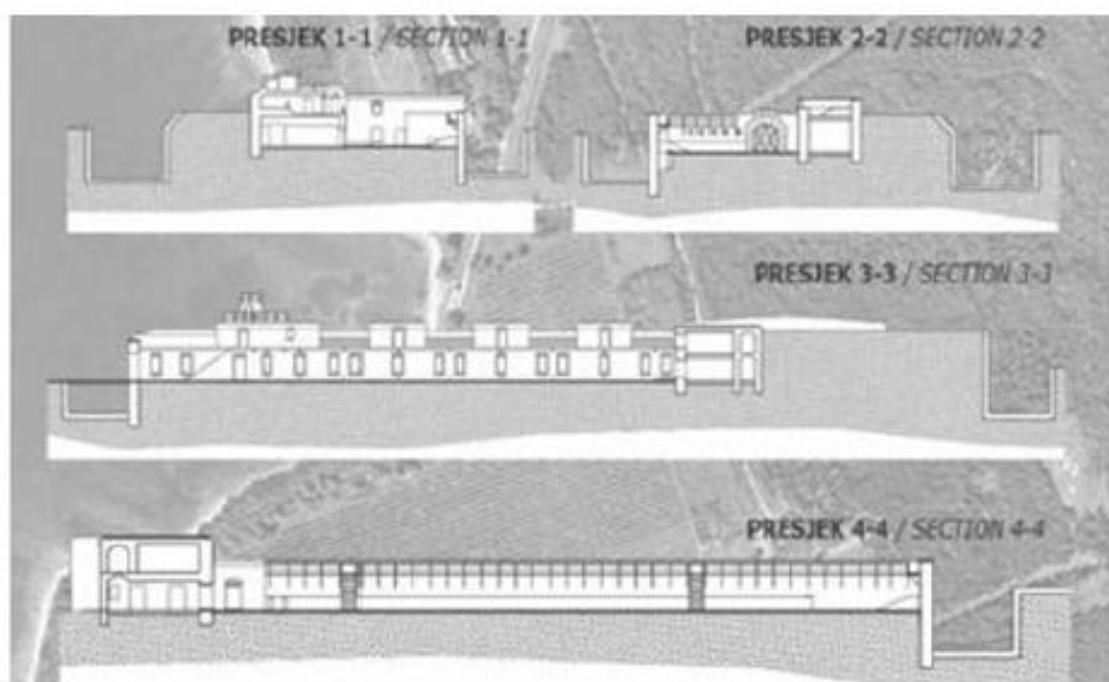


Fig. 10. One of the tasks is the preparation of technical documentation.

tasks in several stages: researches and records, reconnaissance and identification, establishing legal protection, revaluation and reuse. Afterwards they redesign all collected materials in digital form. In addition to practical work, the program of activities includes lectures of expert leaders and visiting experts for military architecture which are related to the development of the fortifications, methods of research and documentation, development of guidelines for the protection and restoration. Besides lectures, for students are organised study trips to the site where they can be faced with the unique architecture and concrete problems. These workshops accelerated registration of the fortress in order to determine the current state or to make rich technical documentation and interesting conceptual designs for the redevelopment and renovation of fortress. Options for fortification protection are different and depend of their state of preservation, and also of presentation capabilities which are determined by plans and programs of government bodies. Revitalization of fortifications can be stimulated by designed programs for tourist presentation or carefully prepared programs and projects for concession contracts.



Fig. 11. Digital processing of materials collected during field work.



Fig. 12. Lectures of experts for fortification architecture in the seminar part of the workshop.



Fig. 13. Some of experts held lectures and study visits.