ENGENHARIA DE RESILIÊNCIA VOLTADA PARA DESASTRES NATURAIS HIDROLÓGICOS NO RIO GRANDE DO SUL

Karin Luise Dos Santos [1]; Malisia Balestrin Lazzari [2] ; Marcia Lourenço [3]

ABSTRACT – Natural hydrological disasters such as floods, spate and flash flood have been part of the history of mankind. In recent years, the number of occurrences and the number of people affected have increased significantly. Because of this, initiatives such as the "Making Cities Resilient" campaign have emerged, aimed at increasing community resilience to disasters, reducing loss of human lives, social, economic and environmental assets. In this respect, Resilience Engineering - the ability of a system to return (or not) to equilibrium, after suffering an external influence, as a natural disaster; has been collaborating with the maintenance of the system, so as to leave it as close to balance. Therefore, this work seeks to observe the municipalities of Rio Grande do Sul that suffer from natural hydrological disasters, with emphasis on the municipality with the largest number of people affected, analyzing the risk areas and verifying how resilience engineering can be approached. Initially, the available data from the 50 gaucho risk municipalities on the CPRM (Mineral Resources Research Company) platform were analyzed, and then the municipality of Pelotas was selected as having the largest number of people living in risk areas. For this municipality, a historical survey of the hydrological natural disasters that occurred in the last 10 years was made through the database of the Integrated Disaster Information System (S2iD). Pelotas has 24.200 people living in hazardous areas and during this period three major disasters were observed: in 2009, 2015 and 2016. The main cause in all cases was intense rainfall, which caused overflows of streams and brooks, causing flooding and damaging a significant part of the public infrastructure of the rural and urban area, directly affecting, including deaths, or indirectly, large numbers of people. In view of human, material and environmental damage, resilience engineering helps to create plans to control the occupation of hazardous areas, build buildings and infrastructure, develop effective drainage systems, and prepare the population by creating a culture of risk prevention and developing warning systems across the river basin. It is considered that this type of analysis is fundamental to advance both in the development of public policies and in the prevention, mitigation, preparation, response and rehabilitation actions to reduce the impact of disasters.

Palavras-Chave – Engenharia de Resiliência, Desastres Naturais Hidrológicos, Rio Grande do Sul

1) Doutoranda em Qualidade Ambiental, Universidade Feevale, karinluise@feevale.br, 51 999060096
2) Doutoranda em Qualidade Ambiental, Universidade Feevale, mali_lazzari@hotmail.com, 55 996459190
3) Doutoranda em Qualidade Ambiental, Universidade Feevale, marcialourenci@feevale.br, 51 981088317