



# VEGETAL COVER CHANGE AND COMMERCIAL CHARCOAL PRODUCTION IN THE SOUTHERN REGION OF NIGER STATE, NIGERIA

## ZMIANA POKRYCIA ROŚLINNEGO I KOMERCYJNA PRODUKCJA WĘGLA DRZEWNEGO W POŁUDNIOWYM REGIONIE STANU NIGER W NIGERII

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### Abstract

*Vegetal cover change is a threat globally, a phenomenon with less attention concerning charcoal production. This study investigates vegetal cover loss and commercial charcoal production by analyzing three major charcoal depots in Niger south, Nigeria: Tatabu, Badeggi, and Batati. Utilizing a quantitative approach, primary data were collected through 663 questionnaires and secondary data via Landsat satellite imagery of 2010, 2015, and 2020 within a five-kilometer radius of the depots. Relative importance index (RII) was used to analyse primary data, while satellite imageries were processed using ArcGIS 10.8 software. Findings indicate a decrease in vegetative cover in Badeggi from 472.65 ha in 2010 to 269.92 ha in 2020. Key drivers of vegetation loss include deforestation (0.763 RII), farming (0.700 RII), and construction (0.690 RII). The region produces an average of 132 bags of charcoal weekly and ten truckloads monthly. The study emphasizes the urgent need for sustainable environmental management and alternative energy sources.*

**Keywords:** charcoal production, deforestation, land cover change, Niger south, vegetal cover

### Streszczenie

*Zmiana pokrycia roślinnego stanowi globalne zagrożenie, a zjawisku temu poświęca się mniej uwagi w kontekście produkcji węgla drzewnego. Niniejsze badanie analizuje utratę pokrycia roślinnego i komercyjną produkcję węgla drzewnego, analizując trzy główne składy węgla drzewnego w południowej części stanu Niger w Nigerii: Tatabu, Badeggi i Batati. Wykorzystując podejście ilościowe, zebrano dane pierwotne za pomocą 663 kwestionariuszy oraz dane wtórne za pomocą zdjęć satelitarnych Landsat z lat 2010, 2015 i 2020 w promieniu pięciu kilometrów od składów. Do analizy danych pierwotnych wykorzystano względny wskaźnik ważności (RII), a zdjęcia satelitarne przetworzono za pomocą oprogramowania ArcGIS 10.8. Wyniki wskazują na zmniejszenie się pokrywy roślinnej w Badeggi z 472,65 ha w 2010 r. do 269,92 ha w 2020 r. Głównymi czynnikami powodującymi utratę roślinności są wylesianie (0,763 RII), rolnictwo (0,700 RII) i budownictwo (0,690 RII). Region produkuje średnio 132 worki węgla drzewnego tygodniowo i dziesięć ciężarówek miesięcznie. Badanie podkreśla pilną potrzebę zrównoważonego zarządzania środowiskiem i alternatywnych źródeł energii.*

**Słowa kluczowe:** produkcja węgla drzewnego, wylesianie, zmiana pokrycia roślinnego, południowy Niger, pokrycie roślinne

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