CONVERGENCE ANALYSIS OF COMMON SOLUTION
OF CERTAIN NONLINEAR PROBLEMS

F.U. OGBUISI* AND O.T. MEWOMO**

*School of Mathematics, Statistics and Computer Science
University of KwaZulu-Natal
Durban, South Africa
E-mail: 215082189@stu.ukzn.ac.za  fudochukwu@yahoo.com

**School of Mathematics, Statistics and Computer Science
University of KwaZulu-Natal
Durban, South Africa
E-mail:mewomoo@ukzn.ac.za

Abstract. We introduce an iterative algorithm for approximating a common fixed point of an
infinite family of left Bregman strongly nonexpansive mappings which is also a common solution
of a finite system of generalized mixed equilibrium problems and a common zero of a finite family
of maximal monotone operators in a reflexive real Banach space. A strong convergence theorem is
also proved for finding an element in the intersection of the set of solution of a fixed point problem
for infinite family of left Bregman strongly nonexpansive mappings, the set of solutions of a system
of generalized mixed equilibrium problems and the set of zero points of a finite family of maximal
monotone operators in a reflexive real Banach space. The result of this paper complement many
related and important results in the literature.

Key Words and Phrases: Bregman distance, Bregman projection, maximal monotone operator,
generalized mixed equilibrium problem, resolvent, Legendre function, reflexive real Banach space,
zero point.

2010 Mathematics Subject Classification: 47H06, 47H09, 47J05, 47J25

Acknowledgement. The first author acknowledge with thanks the bursary and fi-
nancial support from Department of Science and Technology and National Re- search
Foundation, Republic of South Africa Center of Excellence in Mathematical and Sta-
tistical Sciences (DST-NRF COE-MaSS) Doctoral Bursary. Opinions ex-
pressed and conclusions arrived are those of the authors and are not necessarily to be attributed
to the CoE-MaSS.

REFERENCES


Received: September 22, 2015; Accepted: July 28, 2016.