

## Scientific Wealth of Mongolia on a Global Scale

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### Abstract

This article attempts to objectively evaluate the scientific wealth of Mongolia as a nation, by analyzing journal publications by Mongolian scientists recorded in the ISI database. Publications by Mongolian authors for the period of 1979-2002 were included for analyses. Although the total number of publications has increased for the given period, there was no significant increase in the relative citation impact or RCI. Changes of publication quality as measured by RCI showed different trends for various scientific fields. Publications in clinical medicine and biology show most positive trend, whereas publications in mathematics and physics declined in quality. All the fields are well below the world's total publication quality for a comparable period. Additionally, percentage of papers by Mongolian senior authors has declined (though the trend is not significant). This is a rather disturbing trend given the fact that the number of researchers with a doctor's degree in the country has greatly increased during the same period of time. Quality of publications by Mongolian first authors and only Mongolian authors were significantly lower than collaborative ones. As far as we are aware, this is the first evaluation of scientific wealth of Mongolia as a whole and it is hoped that it would be helpful to policy-making and scientific communities in prioritizing and determining the direction of support and finance.

**Key words:** scientific wealth, ISI, publication quality, citation impact, Mongolia

### Introduction

In the comparatively short history that modern science has been practiced, Mongolian scientists have accomplished a tremendous amount of work. However, arguably in almost all fields of scientific research, Mongolian scientists are far behind their international peers. Perhaps that is why from time to time in the media people hear a researcher saying that his/her research "has reached the international level." Thus, questions arise naturally: What is the "international level" of scientific research and how does the "Mongolian level" compare with it? What is the scientific wealth of Mongolia and how have we been doing in different fields of study? What disciplines are we better at and what should we be doing to improve science? In this article, we objectively evaluate scientific wealth of Mongolia on the global scale. It is conventional to estimate scientific activity of a certain nation by the number and quality of scientific publications because publication is the main output of scientific research and is therefore the best indicator of scientific wealth. Scientific activity is usually indicated by

the number of publications in peer-reviewed journals. Commonly the total number of publications standardized by total population of a nation is taken as scientific wealth of that nation (Perez-Iratxeta and Andrade 2002). In this paper we offer an evaluation of scientific research output of Mongolia between 1979 and 2002. We also give comparisons of outputs and trends in quality of different scientific disciplines as practiced in Mongolia during the same period of time.

The study was based on the database of The Institute of Scientific Information (ISI) which offers the largest compiled information on scientific journal publications from all over the world. ISI maintains the following databases: Science Citation Index (SCI), Social Sciences Citation Index (SSCI), and Arts & Humanities Citation Index (AHCI). We used all three of them for searching publications authored by Mongolian researchers. The SCI is a multidisciplinary index to the journal literature of the sciences. It fully indexes 5,900 major journals across 150 scientific disciplines. The SCI includes all cited references captured from indexed articles providing access to retrospective data from 1945