

Iranian Soil Science Congress: History (1972–2017) and selected highlights

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ABSTRACT

This study describes the history and outcomes of the Iranian Soil Science Congress (ISSC). From 1972, the Soil Science Society of Iran (SSSI) has organized 15 ISSCs. The ISSC has been organized at six disciplines including (I) soil chemistry, (II) soil physics, (III) soil genesis and classification, (IV) soil biology, (V) soil erosion and conservation, (VI) soil fertility and plant nutrition, this structure still has remained. In the past 25 years, 7864 papers have been presented at ISSC and the soil fertility and plant nutrition discipline has the highest number of papers. The number of papers published in the ISSC has sextupled in the 10 years from 2001 to 2011, followed by a sharp decline (i.e., 43%) in 2015. Despite the large number of papers presented in the ISSCs, knowledge about how soils should be governed is little. It is expected that studies on climate change will have a special place among Iranian soil scientists in the future. To increase trends in environmental challenges and policy issues, interdisciplinary approaches are required. Therefore, Iranian soil scientists require national and international collaboration and communication with scientists in other disciplines to successfully manage the soils. Unfortunately, there are several pessimism and concerns on the future of soil science in Iran. To get out of this situation, modeling from the successful countries in this field seems necessary.

1. Introduction

Soil is essential for life and identified as being central to many of the challenges facing society, including food, water, energy security and supporting biodiversity, all of which contribute to human health (Bouma, 2014; McBratney et al., 2014; Arrouays et al., 2017). The soil is a critical component in understanding global issues and these require research that leads to understanding and solutions at national and regional levels (Hartemink, 2014).

Soil science is special and maturing science that became a scientific discipline in the 19th century when agricultural chemists and agro-geologists combined their efforts and soils were seen as natural bodies that ought to be studied independently (Hartemink et al., 2014). The content of soil science is uneasily placed between natural science on the one hand, and the world of professional practice on the other (Philip, 1991). In the first half of the 20th century, soil science grew rapidly and established some sub-disciplines such as pedology, soil chemistry, soil biology, soil fertility and soil physics (Brevik and Hartemink, 2010). Although, the soil science developments have been different in various parts of the world, one of the main pillars in the development of the soil science discipline has been the formation of an international learned society. The International Society of Soil Science (ISSS) or its successor

the International Union of Soil Sciences (IUSS) has played a major role in the development and promotion of soil science as a discipline. Since the ISSS had paid little attention to historical developments, a working group was formed to deal with the history and sociology of soil science at the 12th congress of ISSS, held in New Delhi in 1982 (Boulaïne, 1989). The IUSS provides opportunities to: (i) ensure the advancement of soil science and its application, (ii) to handle the business of the society, (iii) working groups through the World Congress of Soil Science (WCSS).

The Soil Science Society of Iran (SSSI) as a member of IUSS was formed 45 years ago with the aim of exchanging the latest research results and international sharing the advanced research methods in soil and environmental issues. The SSSI started with 5 members and presently has nearly 1223 members. Number of SSSI members increased dramatically (i.e., 5 versus 1223) over time from 1992 to 2017. From 1992 to 2000, the number of members grew steadily but between 2000 and 2017 the growth occurred with a higher rate (Fig. 1). This paper aims to investigate the history and outcomes of the ISSC from 1972 to 2017.

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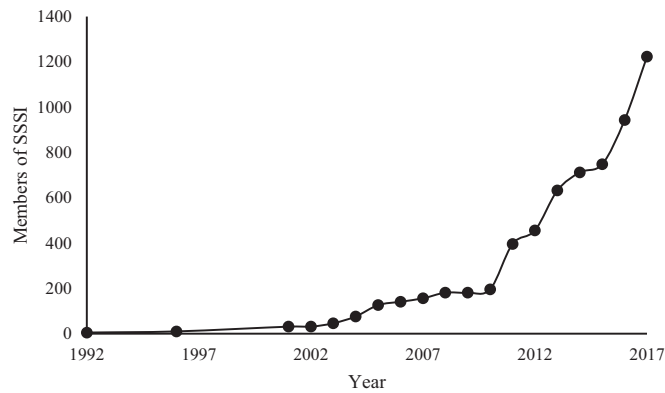


Fig. 1. Total members of the SSSI over time from 1992 to 2017.

2. Methods

The archive of 15 ISSCs was collected and analyzed. In total, this work covers almost 7860 papers. All published papers in ISSCs were considered and different issues were extracted from this archive including (i) general information such as overview of ISSCs, number of papers published during ISSCs for various sub-disciplines; (ii) contribution of each province in compilation of papers; (iii) contribution of universities and research institutes in compilation papers during different decades and (iv) important issues discussed in ISSCs. Moreover, we prepared a questionnaire to collect the opinion of different Iranian soil scientists about the future of soil science in Iran.

3. Results and discussion

3.1. The ISSC history

Over the past 45 years, 15 ISSCs were held at different universities and research institutes of Iran under the guidance of the SSSI (Table 1). The Tehran University which is the oldest and the most prestigious Iranian university was selected as the first meeting place of the ISSC. The ISSC's activity interrupted from the mid-1970s to early 1990s because of Iran–Iraq war, Iranian cultural revolution and closure of the universities. After that, the ISSCs were held every two years (Table 1). From 1992 to 2017, 7864 papers have been presented at ISSC. Despite the author's many efforts, due to the lack of documentation or absence of appropriate archives, no information about the 1st and 2nd ISSC was

Table 1

An overview of the ISSCs from 1972 to 2017.

ISSC	Year	Location	Header	Congress Theme
1st	1972	University of Tehran	NA ^a	NA ^a
2nd	1975	Shiraz University	NA ^a	NA ^a
3rd	1992	University of Tehran	Dr. Negarestan	Identification of soil resources and programming for optimal consumption
4th	1994	Isfahan University of Technology	Dr. Jalalian	Increase production yield per unit area
5th	1996	College of Agriculture of Karaj	Dr. Rozitalab	Optimal productivity of water and soil with emphasis on soil erosion
6th	1998	Ferdowsi University of Mashhad	Dr. Haghnia	More attention to soil genesis and classification
7th	2001	Shahrekord University	Dr. Givi	Sustainable development
8th	2003	University of Guilan	Dr. Haghparast Tanha	Achieve sustainable development
9th	2005	Soil Conservation and Watershed Management Research Center	Dr. Shoaei	Conservation of soil resource and optimal productivity of water and soil with emphasis on soil erosion
10th	2007	Agriculture and Natural Resources, University of Tehran	Dr. Sherfa	Sustainable soil management
11th	2009	Gorgan University of Agricultural Sciences and Natural Resources	Dr. Khormali	Soil management and food security
12th	2011	University of Tabriz	Dr. Jafarzadeh	Soil degradation and land suitability management
13th	2013	Shahid Chamran University of Ahvaz	Dr. Landi	Sustainable soil, sustainable production
14th	2015	Vali-e-Asr University of Rafsanjan	Dr. Mozafari	Soil security-clean life
15th	2017	Isfahan University of Technology	Dr. Hajabbasi	Soil-health-life

^a Not available.

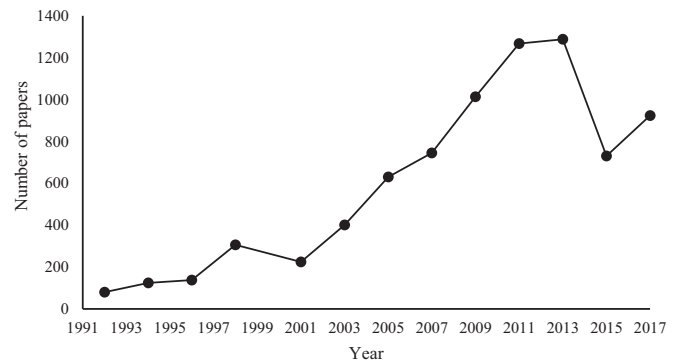


Fig. 2. Number of papers published in Iranian soil congresses over time from 1992 to 2017.

received.

As Table 1 shows, every congress is based on a theme that covered various soil issues and organizer's efforts to focus the researcher's mind on these concepts and to discuss them. Unfortunately, these aims could not entirely shift the studies toward congress themes. The need for change in ISSC's theme had been recognized from 2007. Table 1 shows that from the 10th ISSC, the congress theme was adapted to harmonize with many of the problems (e.g., food security, water security, ecosystem sustainability and climate change) facing the world today.

3.2. Number of papers published in ISSCs

From 1992 to 1995 the number of papers grew steadily, reaching a high at the time of 1288 papers in 2013. The number of papers published in ISSCs has sextupled in the 10 years (from 2001 to 2011). However, in 2015 the number of papers dropped to 730, a decline of 43% (Fig. 2). Reasons for this decline may be include the multiplicity of congress in Iran and sometimes their concurrence with soil congress, relatively high costs and lack of financial accountability for some students, some headers preferred the quality of papers versus quantity, higher score of journal papers than congress papers for scientific promotion of faculty members in the universities and research institutes of Iran, decline in the quality of congress papers, lack of a suitable future in Iran for graduated students of soil science which consequently declines in their motivation to participate in the soil congresses. After that, the number of papers which presented at 15th ISSC increased 26% (Fig. 2).

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