

MathSciNet for Developing Countries Program

Edward Dunne

In April 2021, the AMS published an online feature news story¹ by Scott Hershberger about Uzbekistan's participation in the MathSciNet for Developing Countries program. In that piece, Shavkat Ayupov, the director of Uzbekistan's Institute of Mathematics, and Zair Ibragimov, a professor of mathematics at California State University, Fullerton, told of the importance that access to MathSciNet holds for mathematical researchers in Uzbekistan. For many readers, this was the first they had heard of this AMS program. Although the program has only existed as currently named since 2013, MathSciNet for Developing² Countries is just the latest incarnation of how the AMS has worked towards broad participation in mathematics since at least the 1980s.

History

In the 1980s and into the early 1990s, the AMS ran programs to help mathematicians in countries described as "currency poor." These were countries whose currencies were restricted and could not be exchanged for others. Most

were communist countries, with prominent examples being China and the Soviet Union. One program from the early 1980s was the *foreign reviewer credit*. Mathematicians from countries with currency restrictions who wrote reviews for *Mathematical Reviews* could choose to receive free AMS membership, free subscriptions to two *Mathematical Reviews* sections of their choice, or credit towards the purchase of AMS publications. The last option was of particular use because the currency restrictions made it hard for researchers in these countries to purchase books from the United States or Western Europe. A fourth option was for three reviewers to combine their credits to obtain one free subscription to (print) *Mathematical Reviews*. It was understood that in most instances the free subscription to *Mathematical Reviews* would be used by the reviewers' home institution. In November 1990, the countries eligible for foreign reviewer credits were: East Germany, Bulgaria, Poland, Romania, USSR, People's Republic of China, Yugoslavia, North Korea, Czechoslovakia, Vietnam, Hungary.

By the early 1990s, *Mathematical Reviews* was available in multiple formats: the traditional print version; a database version, which had been available as MATHFILE since 1982, but required either going through a third-party service (BRS or Dialog) or having specialized software at the institution; and now a CD-ROM. The pricing for *Mathematical Reviews* reflected this variety. The major part of the subscription price was the "Data Access Fee" or "DAF," which was meant to cover the cost of the content. Then a subscriber would pay a smaller amount depending on the form of the delivery of the content. After some interim proposals,

Edward Dunne is the Executive Editor of *Mathematical Reviews* at the American Mathematical Society. His email address is egd@ams.org.

¹"MathSciNet catalyzes math research in Uzbekistan," https://www.ams.org/news?news_id=6672, April 13, 2021.

²"Developing countries" is not a good name, since in fact all countries are developing. The term, however, is simple and widely understood. So, for the time being, we continue to use it.

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in 1995 the AMS created the National MR Subscription Program (NMRSP). In this program, discounted access to *Mathematical Reviews* was achieved by lowering the Data Access Fee for institutions in countries whose reviewers were eligible for the foreign reviewer credit. The discounted DAF was also extended to African countries, except South Africa, which was the subject of a boycott at the time. In 1996, this was changed by creating a National Data Access Fee (NDAF). Now, the DAF was for an entire country, not just a single institution. The criteria were based on the Gross National Income of the country, the per capita Gross National Income, and the number of papers from that country reviewed in *Mathematical Reviews* in the previous three years. The smallest possible National DAF was \$200.

In 2005, the AMS Executive Council and Board of Trustees approved a new pricing model for the NMRSP which was based on the same principles, but was simpler and easier to maintain. The pricing model was revised slightly in 2008 in order to update the economic qualifiers for participation in the NMRSP to be more in line with World Bank economic classifications. For 2021, the list of qualifying countries was revised to align with the list of countries that qualify for discounts or complimentary access to the AMS core research journals.

The program was renamed the MathSciNet for Developing Countries (MDC) program in 2013. In its various forms, the program has been increasingly successful. In 1990, 11 countries were able to receive discounted subscriptions to *Mathematical Reviews*. In 1998, there were 21 countries participating in the NMRSP. In 2021, there are over 100 sites in 44 countries subscribing to MathSciNet under the MDC program. The potential is even greater; there are numerous eligible countries that have not yet signed onto the program.

Countries Currently Participating in the MDC program:

Albania	Gabon	Namibia
Armenia	Ghana	Niger
Benin	Ivory Coast	Nigeria
Bosnia-Herzegovina	Jordan	Pakistan
Burkina Faso	Kenya	Rwanda
Burundi	Laos	Senegal
Cambodia	Macedonia	Serbia
Cameroon	Madagascar	Sudan
Democratic Republic of the Congo	Malawi	Tanzania
Republic of the Congo	Mali	Tunisia
Estonia	Mauritania	Uganda
Ethiopia	Moldova	Uzbekistan
Fiji	Mongolia	Vietnam
	Montenegro	Zambia
	Mozambique	Zimbabwe
	Myanmar	

Current

In my blog post³ promoting Scott Hershberger's story, I wrote that some of my most rewarding experiences as the Executive Editor of *Mathematical Reviews* have been meeting mathematicians whose institutions subscribe through the MDC program. There were many mathematicians from developing countries at the ICM in Rio de Janeiro, thanks to the Open Arms Program sponsored by IMPA and the Brazilian Mathematical Society, supplemented by 130 grants from the International Mathematical Union. Quite a few mathematicians from MDC countries sought out the AMS booth just so they could come by to thank us for the program. Like Shavkat Ayupov and Zair Ibragimov from Uzbekistan, they spoke of the great value that MathSciNet had for them. MathSciNet helps them know what has already been done. They also pointed out the reciprocal fact: MathSciNet helps others find out what they have done. Most of those whom I have met have also been proud to be reviewers. They have told me that they appreciate connecting with global mathematics through writing reviews of papers by people from all over. Mathematicians in MDC countries are putting MathSciNet to good use. In 2020, there were over half a million MathSciNet searches from IP addresses in MDC countries.

Counting authors of papers published in 2019 and indexed in MathSciNet, there were 282,464 authors worldwide and 6,979 authors from MDC countries, which is about 2.5%. There are 23,970 active reviewers for MathSciNet, of whom 825 come from MDC countries (about 3.4%). Globally, about 8% of authors in our database are also reviewers. For MDC countries, it's 12% of authors who are reviewers. In other words, mathematicians from MDC countries are about 50% more likely to be reviewers than those from the rest of the world.

While the reviewer statistic is heartening, the statistics counting mathematicians from MDC countries are not. In particular, MDC countries are vastly underrepresented among authors. Using 2019 data, the 44 countries in the MDC program represent 18% of the world population, but they represent just 2.5% of the authors of papers published in 2019 that are in the *Mathematical Reviews* database. This is horribly skewed. Such unbalanced statistics are evidence of the disparities in mathematics that are the result of a long history of social, political, and economical inequities. Awareness of the imbalance can be a catalyst for addressing it. The MDC program plays a particular, but narrow role in achieving a more equitable discipline. A network of programs, both national and international, is what is really required. I work with the MathSciNet for Developing Countries program because it is a program where my talents and connections can be useful in reducing inequity in mathematics. I encourage you to find what works for you.

³"MathSciNet, Uzbekistan, and the MDC Program," <https://blogs.ams.org/beyondreviews/2021/04/13/mathscinet-uzbekistan-and-the-mdc-program/>, April 13, 2021.

MathSciNet for Developing Countries is funded through a combination of AMS and donor support. The AMS offers extremely deep discounts on subscription rates to all qualifying institutions, and that discounted rate is offset by donor gifts that bring institutions' cost in some cases to \$0. Since 2013, more than 200 donors have contributed to the fund that supports the program. There are three ways you may donate to the MDC Fund: on the AMS website at <https://ebus.ams.org/ebus/Giving/MakeAGift.aspx?gift=NMRSUB>, by sending a check to the AMS Development Department and instructing the AMS to direct the gift to the MDC Fund, or by calling the Development Office at +1 (401) 455-4126.

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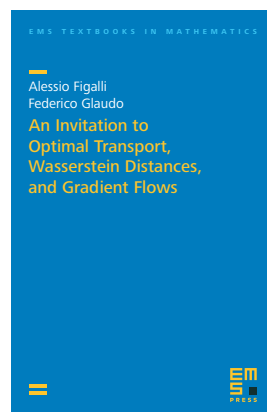


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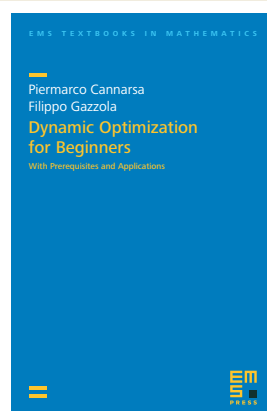
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