India. There are fears that due to higher population, vulnerability and weak healthcare system, the real magnitude/ burden of heat wave mortalities may be much higher than what is reported in newspapers[3]. For example, the 2010 heat wave in Ahmedabad in news reports had 50 excess deaths while on analysis around 1400 excess mortalities had occurred during the same period[4]. It is important to emphasize the difference between hot weather and heat waves; while hot weather is common to India, heat waves represent a significant deviation (>5°C) from the normal (or expected) hot weather.

Following international evidence of excess mortalities, various countries have taken measures to address this public health issue. The importance of public health facilities and support infrastructure in the abatement and management of climate-related disasters is underrepresented in literature and policy framing. Given the tight integration between public health and heat wave management, the need for an increase in quantity and quality of these support systems becomes increasingly important given the predicted consequences of climate change. Proven intervention strategies at a population level – city and countrywide heat action plans systematically reduce these additional mortalities. And recent mortality studies show the effectiveness of these interventions both in terms of lives saved and minimal costs.

Policymakers in India have not yet made attempts to setup these intervention strategies systematically; only one such heat wave action plan has been piloted in Ahmedabad in 2013 with its efficacy still under study[5]. This highlights the vicious circle of inaction; little or no research generates less interest in the matter, which in turn propagates the inertia of researchers, funding agencies and policy makers to address the issue of rising high temperature environments in the subcontinent. The reasons for this apathy include both a lack of strong domestic evidence base documenting and characterizing excess mortalities to limited emphasis on translation of evidence to policy/intervention systems.

To address this issue, we suggest that a renewed interest be generated in what is to most, an age-old problem. Increase in awareness among the scientific community and laymen will go a long way in creating the necessary impetus from local authorities and special interest groups. We hope that heat waves be recognized as a disaster by key agencies such as the National Disaster Management Authority (NDMA) and leading to adoption of appropriate adaptation and response strategies. This would be a positive first step towards tackling the issue and ensuring that measures towards increasing climate adaptability are taken sooner rather than later.

1. Kakkad, K., Barzaga, M. L., Wallenstein, S., Azhar, G. S. and Sheffield, P. E., *J. Environ. Public Health*, 2014.
2. IPCC, Climate Change 2014: Impacts, adaptation, and vulnerability. In Fifth Assessment Report (AR5), Geneva, 2014.
3. Tran, K. V. *et al.*, *Int. J. Environ. Res. Public Health*, 2013, **10**(6), 2515–2543.
4. Azhar, G. S. *et al.*, *PLoS One*, 2014, **9**(3), e91831.
5. Knowlton, K. *et al.*, *Int. J. Environ. Res. Public Health*, 2014, **11**(4), 3473–3492.

ACKNOWLEDGEMENTS. We gratefully acknowledge the support of our partners Jeremy Hess, Perry Sheffield, Kim Knowlton, Peter Webster and Anjali Jaiswal of the Ahmedabad Heat and Climate Group.

GULREZ SHAH AZHAR[1,2,*]
AJIT RAJIVA[1]
PRIYA DUTTA[1]
DILEEP MAVALANKAR[1,2]

[1]*Indian Institute of Public Health Gandhinagar, Sardar Patel Institute Campus, Ahmedabad 380 054, India*
[2]*Public Health Foundation of India, 4 Institutional Area, Vasant Kunj, New Delhi 110 070, India*
**e-mail: gsazhar@iiphg.org*

Budget allocation to state S&T councils

In India, science and technology (S&T) research and policy have largely been the domains of government since 1947. With nearly 17% of the global population residing in this country, the government has an arduous task ahead to convert these people into a scientifically and technically capable community. Therefore the real challenge today is to bring larger masses under the umbrella of S&T. For such a scenario to become possible, it is essential that S&T be at the heart of the strategies for national development. It is in this context that the initiative to establish state councils for S&T was first taken up in 1971. It was stressed that irrespective of large investments of the Central Government in S&T in various sectors and institutional infrastructure, the central S&T agencies must take the states along if the development goals are to be attained. State S&T councils have been hence established for wider reach of S&T programmes. Thus Karnataka, Kerala, Uttar Pradesh and West Bengal were the first to establish their state S&T councils by the end of the Fifth Five-Year Plan. Since then, each state and union territories have their own councils. These councils play a catalytic role for the promotion of S&T in the respective states and supplement/ complement the developmental programmes of the state in different sectors.

Serving as a bridge between the central S&T sector and the states, these state S&T councils however, have remained weak links in promoting the applications of technologies as is categorically stated in the working group report of XII Five-Year Plan[1]. One of the said causal factors is the budget constraint. Apparently, the functioning of these councils depends upon the financial support from DST in the form of core support and grant from their respective state governments. If we look at the XI Five-Year Plan (2007–12), budget expenditure, a total of Rs 53.40 crores was provided to the councils through DST[2]. As a matter of fact, this core support by DST is far lesser compared to the state share for majority of the states, yet for some states like Himachal Pradesh and Punjab the grant is comparable. This portrays that the functioning of state S&T councils more or less depends upon the budget support by the state.

We tried to compare the state council's budget allocation by DST relatively with the GDP of the state and the number of institutes positioned in its jurisdiction and figure out whether these parameters

Table 1. Ranking of states S&T council according to GSDP, number of S&T institutes and total allocated DST budget*

State	DST core grant to state S&T councils for 2012–13 (in lakhs)[2] (Ranking)	S&T institutes in numbers[3] (Ranking)	GSDP 2012–13 in crores[4] (Ranking)
Andhra Pradesh	62.74(15)	243(4)	6,62,592(4)
Arunachal Pradesh	90.75(5)	3(21)	10,619(22)
Assam	97.00(4)	44(14)	1,25,820(15)
Bihar	31.07(21)	37(15)	2,47,318(13)
Chhattisgarh	74.32(13)	5(20)	1,32,872(14)
Goa	68.70(14)	8(17)	36,025(18)
Gujarat	56.00(16)	226(5)	5,94,563(5)
Haryana	27.74(23)	91(10)	3,01,959(11)
Himachal Pradesh	84.65(9)	46(13)	64,957(17)
Karnataka	87.00(6)	246(3)	4,58,894(7)
Kerala	76.00(12)	121(8)	3,07,906(10)
Madhya Pradesh	105.38(3)	100(9)	3,11,670(9)
Maharashtra	14.00(25)	633(1)	11,99,548(1)
Manipur	83.57(10)	3(22)	10,504(23)
Meghalaya	18.08(24)	8(18)	16,412(20)
Mizoram	52(17)	1(25)	7,198(25)
Nagaland	46.00(19)	2(23)	13,203(21)
Punjab	125.50(1)	53(12)	2,56,430(12)
Rajasthan	85.20(8)	75(11)	4,03,422(8)
Sikkim	87.00(7)	2(24)	8,616(24)
Tamil Nadu	51.34(18)	307(2)	6,65,312(3)
Tripura	42.00(20)	6(19)	20,982(19)
Uttar Pradesh	110.50(2)	201(6)	6,79,007(2)
Uttarakhand	77.97(11)	32(16)	97,696(16)
West Bengal	28.99(22)	178(7)	5,38,209(6)

*Spearman's rank correlation coefficient: GDP and S&T institutes = 0.95; Budget and S&T institutes = –0.45; GDP and budget = –0.06.

affect the budget allocation or not (Table 1). According to Spearman's rank correlation coefficient, it was clear that existence of more number of S&T institutes in a state has a bearing on states' GDP. But the GDP and the number of S&T institutes have no effect on the budget allocated to the state councils by DST.

Recently, DST constituted a committee to rank the state councils for their performance on the basis of performance parameters and categorized them into four categories, i.e. progressive states, moderate, average and static states. Now the top ten states infused with substantial budget by DST on S&T councils are: Punjab, Uttar Pradesh, Madhya Pradesh, Assam, Arunachal Pradesh, Karnataka, Sikkim, Rajasthan, Himachal Pradesh and Manipur. Of these, Madhya Pradesh and Karnataka lie in the first category; Uttar Pradesh and Punjab in the second category; Assam, Manipur and Sikkim in the third category; Rajasthan, Arunachal Pradesh and Himachal Pradesh in the fourth category. This brings out the fact that budget is not the only factor which limits a council's functioning. Though these states were provided with apposite budget, their performance was ranked in separate categories.

1. Working Group Report for the Twelfth Five Year Plan (2012–17), Department of Science & Technology, Ministry of Science & Technology, New Delhi, accessible at dst.gov.in/about_us/12th-plan/11-wg_dst-2905-report.pdf
2. Report of the committee on development of evaluation mechanism for annual core grant support to state science & technology councils under state science & technology programme (SSTP) of DST, GoI.
3. http://www.dst.gov.in/admin_finance/unsq1573.htm
4. http://planningcommission.nic.in/data/datatable/index.php?data=datatab

KIRTI JOSHI*
MANOJ K. SINGH
RAJENDRA DOBHAL

Uttarakhand State Council for Science and Technology,
Vigyan Dham, Jhajra,
Dehradun 248 007, India
**e-mail: kirtijoshi1@gmail.com*

Why not all research data be on Open Access?

Recently DST/DBT has come out with a draft policy for making the research data to be on open access[1]. It is a welcome move and should move the international community towards this policy.

It is a well-known fact that publishing research work is expensive both for the investigator as well as publisher. But what is not realized is that most of the research conducted is done with support from the taxpayer but he does not get a chance to see the work published without paying. The winner in this game is the publisher who uses the copy right to make money. This is rather unfortunate and not correct when all cost of doing research including the processing cost of the manuscript, is paid through the tax payers money. In US, some universities have now asked their scientists to publish their work only in open access journals and have also asked their libraries not to subscribe to journals which are not on open access. It is time now that all countries do this since the tax payer/reader has already paid for the work through taxes and has been cheated for long.

1. http://spicyip.com/2014/07/spicyip-tidbit-indias-dbt-and-dst-call-for-comments-on-draft-open-access-policy-with-respect-to-public-funded-research.html

P. TAURO[1,*]
A. S. RAO[2]

[1]*Mangalore Biotech Laboratory,*
Mangalore 575 002, India
[2]*Department of Biotechnology and Genetic Engineering,*
Bharathidasan University,
Tiruchirappalli 620 024, India
**e-mail: ptauro@rediffmail.com*