

publications, (i) we would be doing a lot of research work that never reaches the masses, (ii) we will lose the opportunity of getting feedback (constructive criticism!) from unknown reviewers. Nowadays many journals send a one-line reply, viz. the article 'Rejected' or 'Not suitable for publication', without providing the reasons. However, even now there are journals and editors who send the reviewer comments with which the individual researchers can improvise. Coming back to the topic: (i) Why are we shy of pub-

lishing our work? (ii) Do we lack confidence? (iii) Are we lethargic at publishing? (iv) Are we not insisting on publications? (v) Is change of research area or employment into non-research fields a reason for not publishing? (vi) Is financial constraint a problem for publishing our work? (vii) Is information retrieval a problem? (viii) Is lack of accountability in universities and other institutions a reason? These are the questions that remain unanswered satisfactorily. At least on the part of funding agencies, they should insist and

encourage publications coming out of the funded projects.

1. Sarma, V. V., *Curr. Sci.*, 2007, **92**, 1029.

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Ph D entrance examination schedules

It is observed that every year various national institutions of repute organize entrance tests for admitting students to their Ph D programmes. Generally these

tests are scheduled during May and June. The dates of these examinations often pose difficulties. Table 1 provides the examination dates of different institu-

tions for 2007 that have already taken place. It seems the examination/interview dates of several institutions either overlap or have a narrow interval. This makes it almost impossible for a student to appear for different examinations at different centres, which he/she has already applied for. These inconveniences may perhaps be avoided if the examination and/or interview dates are declared much in advance.

Table 1. Examination schedules of different institutions for admission to Ph D/M Tech programmes in life sciences and allied disciplines during 2007

Entrance examination for various fellowships/Ph D programmes	Examination centres	Date of examination
NII: written test	Kolkata, New Delhi, Bangalore, Mumbai	11 February
GATE	In almost all states	12 February
CDFD, Hyderabad	Hyderabad	14 May
JNU, New Delhi	In most of the states	15–18 May
CCMB, Hyderabad	Hyderabad	18 and 19 May
IIT, Kanpur	Kanpur	18–23 May
Central University, Hyderabad	In a few states	2–7 June
ACTREC, Mumbai	Mumbai	3–7 June
IISc, Bangalore: interview	Bangalore	4–8 June
NBRC, Hissar	Hissar	4–6 June
JNCASR, Bangalore	Bangalore	5 June

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Oran: A sacred way for biodiversity conservation in Indian Thar Desert

The importance of the environment in sustaining life has been realized since the beginning of civilization. Sages, saints and forest-dwellers regarded plants and wildlife as important components of their lives. Worshipping trees and plants to propitiate Gods and Goddesses has been in practice in the Indian society. Conservation of wildlife has been an integral part of the cultural ethos of the country. Conservation of biodiversity for sustainable life in future is a difficult task due

to inadequate data on flora and fauna, conservation efforts and selection of areas¹. In India, informal protected areas exist, including sacred groves, which exhibit rich floral and faunal diversity with some rare and threatened plant species². In compliance with the requirement under the Trade Related aspects of Intellectual Property Right (TRIPS) of the World Trade Organization (WTO), India chose the *sui generis* system³ under its Patent (second Amendment)⁴ of 2002.

'Oran', a sacred grove in the Indian Thar Desert, is a piece of land that is held by the local community in honour and respect of a local deity. These protected areas harbour biodiversity of the Thar Desert, including endangered, rare and threatened plants and animals. Tanot Devi oran is located between the Pokaran field firing range and Indira Gandhi Canal. The oran has endemic plants such as *Prosopis cineraria*, *Capparis decidua*, *Zizyphus nummularia*, *Haloxylon salicorni-*

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cum, Leptadenia pyrotechnica, Crotalaria burhia, Glossonema varians, Blepharis indica, Caralluma edulis, Tribulus terrestris, Lasiurus indicus, Brachiaria ramosa, Cymbopogon sp. and Cenchrus sp. This oran also provides shelter to the chinkara and godavan (Great Indian Bustard). Hunting, felling of trees and agricultural practices are taboo in the holy land of oran. Minor forest produce such as fallen fruits are collected by local inhabitants. None of these are utilized for commercial purposes. Due to faith and sanctity, oran is free from encroachment and indiscriminate exploitation. There is no formal regulatory authority that imposes any type of legal control over the people of the region, but they

abide by natural laws. As rightly quoted by Luther Burbank, 'Nature's laws affirm instead of prohibit; if you violate her laws, you are your own prosecuting attorney, judge, jury and hangman'.

Orans are an oasis in the desert ecosystem that help in maintaining the fragile ecosystem of the Indian Thar Desert. Traditional approaches of biodiversity conservation should be recognized by the policy-makers. These practices must be integrated in the policies for better management of biodiversity in consultation with the local community.

1. Krishnankutty, N. and Chandrasekaran, S., *Curr. Sci.*, 2007, **92**, 1344–1345.

2. Dash, S. S., *Curr. Sci.*, 2005, **89**, 427–428.
3. Bala Ravi, S. and Parida, A., *Curr. Sci.*, 2007, **92**, 581–584.
4. Section 4(i) of Second Patent (Amendment) Act, 2002 declaring plants and animals and parts thereof as non-patentable subjects.

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Science: An extension of war by other means

Karl von Clausewitz famously defined war as 'an extension of politics by other means'. Amazon.com carries an editorial review of a recent book (*War, Science and Terrorism: From Laboratory to Open Conflict* by J. Richardson, Frank Cass, 2002), which describes the application of research to the evolution of weapons, and asks the question: Has science been allowed to become 'an extension of war by

other means'? In fact, in many countries a large proportion of R&D funding is linked to defence requirements.

In Table 1, I have compared some data of the total armed forces manpower committed to defence of some leading countries of the world, with the number of people who are engaged in R&D activities in the same country. The data for scientific manpower was taken from the

Human Development Report 2004, and is based on their estimate of the number of Full Time Equivalent Researchers per million people. This includes all scientists and not just those engaged in defence research. The strength of the armed forces is taken from an article in *Wikipedia* which gives a list of countries sorted by the total number of active troops where the military manpower of a country is measured by the total amount of active troops within the command of that country (http://en.wikipedia.org/wiki/List_of_countries_by_number_of_active_troops).

Japan is the supreme example of a nation that has turned Clausewitz's maxim on its head: it has realized that investing in scientific and industrial research is a long-term surrogate for war. Israel's place at the end of the table is not surprising, given the political exigencies of that region. However, it is clear that India needs to do a lot to come close to the average for these seventeen nations, a leverage of 0.51: in fact, it has to increase the strength of its scientific workforce fourfold.

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Table 1. Leverage ratio of scientists to armed personnel in some leading countries of the world

Country	Armed forces	Scientists	Leverage
Japan	239,000	680,000	2.85
Canada	62,300	98,000	1.57
Australia	53,572	69,000	1.29
Germany	284,500	260,000	0.91
Britain	187,970	161,000	0.86
USA	1,426,710	1,219,000	0.85
South Africa	55,750	44,000	0.79
France	259,050	165,000	0.64
Russia	1,037,000	500,000	0.48
Argentina	71,800	27,000	0.38
Poland	163,000	57,000	0.35
China	2,255,000	766,000	0.34
Switzerland	126,000	27,000	0.21
Brazil	287,000	60,000	0.21
South Korea	687,000	140,000	0.20
India	1,325,000	171,000	0.13
Israel	168,000	10,000	0.06
Total	8,688,652	4,454,000	0.51