

List of files EWG

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EWG General 6.1.3 \ Lists \ List of Inter State Ecoregional Working Groups \ Ver.3 \ 5.4.2000 Not in file.

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giant HII regions, relics of the supergiant molecular cloud they were born from. This already hints at a molecular cloud structure different from that in the Milky Way (\rightarrow Sect. 5).

YSCs are seen in many other interacting galaxies/mergers, too: NGC 3596 (Lutz 1991), NGC 1275 (Holtzman *et al.* 1992), NGC 1140 (Hunter *et al.* 1994), NGC 1705 and M82 (O'Connell *et al.* 1994, 95), He2-10 (Conti & Vacca 1994), Cartwheel (Borne 1995), and several examples in Meurer *et al.* (1996).

A sharp controversy is centered on the question if these YSC are young Globular Clusters (GC) or rather open clusters/OB-associations. Discriminating properties are the effective radii R_{eff} and the Luminosity Function (LF) of the YSCs (van den Bergh 1995). Indeed, observations give a wide range of effective radii, however, Meurer (1995) argue that because of crowding of the YSCs on a bright and variable background these effective radii are probably largely overestimated. They estimate the distance out to which effective radii of YSCs can reliably be measured to be ~ 9 Mpc and find that for all 3 galaxies close enough with YSCs detected the mean R_{eff} of YSCs are indeed well within the range observed for Milky Way GCs. We model the spectral and photometric evolution of star clusters for different initial compositions ($10^{-4} \leq Z \leq 2 \cdot Z_{\odot}$) and find a strong effect of the metallicity on the color evolution, in particular at early stages. Knowing the metallicity of a YSC from spectroscopy (or estimating it from the ISM properties at its birth) then allows for quite precise age dating and for the prediction of its future luminosity evolution (Fritze - v. A. & Burkert 1995). The young mean age of $\sim 2 \cdot 10^8$ yr of the YSCs in Antennae, for which lack of spectroscopy we can only assume the same metallicity as that of the YSCs in NGC 7252, makes it evident that open clusters may well be coexistent with young GCs. We therefore divide the YSCs into subsamples with large and small R_{eff} , cutting somewhat arbitrarily at $R_{\text{eff}} = 10$ pc because of the above mentioned overestimation. Assuming a common age of $2 \cdot 10^8$ yr for the YSCs we then evolve the two LFs over a Hubble time and find that they look significantly different. While the LF for clusters with $R_{\text{eff}} > 10$ pc looks exponential like the LF of Galactic open clusters, the LF for YSCs with $R_{\text{eff}} < 10$ pc more resembles the Gauss-shaped LF of Galactic GCs with the maximum of the distribution at approximately the correct $M_V \sim -7.4$ (Secker 1992). However, it features a strong overpopulation in the faint bins (Fritze - v. A. 1995). It is clear that for an ongoing starburst as in Antennae the age spread among the YSCs should not be neglected. This age spread causes the faint clusters in the present LF to be older on average than the bright ones and, consequently, to fade less over the rest of the Hubble time, moving them to brighter bins in the LF (Fritze - v. A. & Burkert, *in prep.*). Dynamical effects like evaporation through internal stellar mass loss as well as loss of stars and destruction in the inhomogeneous tidal field of the interacting galaxy pair are very difficult to quantify but might preferentially destroy low mass (=low luminosity) clusters.

Summarising, I see substantial evidence for the possibility that in gas-rich mergers a significant population of GCs can be formed. These second generation GCs have higher metallicities: $[\text{Fe}/\text{H}] \gtrsim -0.8$ for mergers of Sb...Sd galaxies that happened not more than 5 Gyr ago. Detection of a bimodal metallicity distribution in a GC system can prove the Sp - Sp merger origin of the parent

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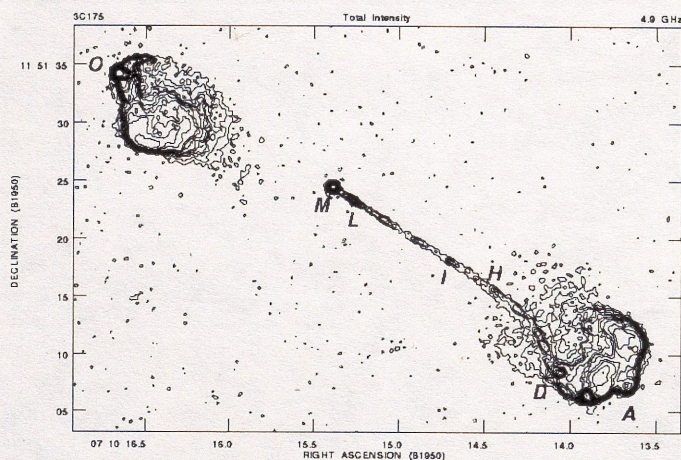


Fig. 9.8. A VLA map of the quasar 3C 175 (Bridle et al. 1994) from The angular resolution is 0.75 arcsec FWHM. M is the core, A and O are the hotspots. Other labelled features are described in the text. There is no candidate counter-jet. The Figure was kindly provided by Alan Bridle.

with angular resolution 1.1 arcsec. The source is a wide double with lobes which are placed symmetrically about the central feature E, but with the northern lobe having ~ 16 times the flux density of the southern lobe. The feature D satisfies the conditions for being a jet, especially when observed at 0.35 arcsec angular resolution (see Bridle et al. 1994). There are complex emission features at A, B and C, of which B is tentatively

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$$\omega_n \epsilon_m^n \sum_h^{N_k(m,m+1)} \left[f(h) \xi_h + \left(\frac{\Delta(f \xi_h)(h) - R(h) f(h) \xi_h / 3}{2(n+2)} \right) \epsilon_m^2 + \mathcal{O}(\epsilon_m^4) \right]. \quad (20)$$

Notice that in terms of the block variables $\psi_m(k; f)$ we can rewrite the empirical averaging (3) as

$$\langle f \rangle_{\epsilon_m}(\psi_m) = \frac{\sum_k^{N(\epsilon_m)} \psi_m(k; f)}{\sum_k^{N(\epsilon_m)} \text{vol}[B(x_k, \epsilon_m)]}, \quad (21)$$

where $N(\epsilon_m)$ denotes the number of distinct $B(x_k, \epsilon_m)$ balls providing a minimal ϵ_m -covering of the manifold Σ . Thus, when m is sufficiently large, the variation in $\langle f \rangle_{\epsilon_m}(\psi_m)$ under a block transformation $\psi_m(k; f) \rightarrow \psi_{m+1}(h; f)$ is given (to leading order) by

$$\begin{aligned} \langle f \rangle_{\epsilon_{m+1}}(\psi_{m+1}) - \langle f \rangle_{\epsilon_m}(\psi_m) \simeq \\ \frac{1}{n+2} \langle \Delta(f \xi_h) \rangle_{\epsilon_m} \epsilon_m^2 \frac{1}{m+1} + \frac{1}{3(n+2)} [\langle R \rangle_{\epsilon_m} \langle f \xi_h \rangle_{\epsilon_m} - \langle R f \xi_h \rangle_{\epsilon_m}] \epsilon_m^2 \frac{1}{m+1}. \end{aligned} \quad (22)$$

The above choice of block variables brings out the coupling between averaging a scalar field over a manifold and the presence of fluctuations in the curvature of the underlying geometry.

In order to be more precise, let us assume that the variables $f(k)$ are randomly distributed according to some probability law $P(\{f(k)\})$ (later on we shall come back to this point with a definite prescription). Upon blocking the system and thus renormalizing the variables $f(k)$ by increasing the scale size, the probability distribution $P(\{f(k)\})$ induces a corresponding probability distribution on the variables ψ_m , viz., $P(\{\psi_m(k; f)\})$.

From equation (17) it is clear that if the geometrical properties of any two balls, $B(x_i, \epsilon_m)$ and $B(x_j, \epsilon_m)$ (with $B(x_i, \epsilon_m) \cap B(x_j, \epsilon_m) = \emptyset$), are not correlated then the corresponding block variables, $\psi_m(i; f)$ and $\psi_m(j; f)$, are uncorrelated. Such length scale $L \equiv \epsilon_m$ characterizes the correlation (or persistence) length of the manifold (Σ, g) . It is a measure of the typical linear dimension of the largest ball exhibiting a correlated spatial structures. This correlation length can be seen in close analogy with the usual correlation length (usually denoted by ξ) in condensed matter systems. It depends there upon the coupling constants in particular upon temperature, and diverges to infinity at the phase transition point.

Since g plays here the rôle of a running coupling, or if you prefer, of "temperature", the existence of a finite correlation length corresponds to a rather "irregular", crumpled geometry (as seen on scales of the order of L), or, equivalently, a *high temperature phase* of our system.

According to the central limit theorem it follows, for m large enough, ($\epsilon_m \gg L$), that the block variables $\psi_m(k; f)$, being the sum of uncorrelated random variables, are normally distributed, (let us say around zero, for simplicity), with a variance

$$E_P(\psi_m^2(i; f)) = N^{(\epsilon_m, m)} \bar{\chi}, \quad (23)$$

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where $E_P(\dots)$ denotes the expectation according to the probability law $P(\{\psi_m\})$, $\bar{\chi}$ is related to the variance of the variables $f(k)$, $R(k)$, and $N^{(\epsilon_o, m)}$ denotes the number of ϵ_o -balls in the m -ball $B(x_i, \epsilon_m)$.

Thus, irrespective of the details of the local distribution of the random variables $f(k)$ and $R(k)$, we can write for the distribution of $\{\psi_m(k; f)\}_1^N$ over (Σ, g)

$$dP(\{\psi_m\}) = \prod_k \left[d\psi_m(k; f) (2\pi N^{(\epsilon_o, m)} \bar{\chi})^{-1/2} \exp \left[-\psi_m^2(k; f) / 2N^{(\epsilon_o, m)} \bar{\chi} \right] \right]. \quad (24)$$

This shows that by rescaling the block variables $\psi_m(k; f)$ according to

$$\phi_m(k; f) \equiv [N^{(\epsilon_o, m)}]^{-1/2} \psi_m(k; f), \quad (25)$$

we get new block variables with a finite variance as $m \rightarrow \infty$, and for *random* metrics (Σ, g) we can write

$$dP(\{\phi_m\}) = \prod_k \left[d\phi_m(k; f) (2\pi \bar{\chi})^{-1/2} \exp \left[-\phi_m^2(k; f) / 2\bar{\chi} \right] \right]. \quad (26)$$

The above remarks, paradigmatic of the real space Renormalization Group philosophy, show that the definition of a sensible blocking procedure, in our geometrical setting, consists of a transformation increasing the scale size, realized by passing from the variables $f(k)$ to the variables $\psi_m(k; f)$, (namely, by taking the average over all values of f in a larger and larger ball), followed by a rescaling obtained by dividing $\psi_m(k; f)$ by a suitable power of the number, $N^{(\epsilon_o, m)}$, of elementary ϵ_o -balls contained in the ϵ_m -ball considered, (for random geometries this power is 1/2).

Following standard usage, and in order to arrive at an interesting geometrical notion of blocking, we assume that for a generic metric g this rescaling follows by dividing $\psi_m(k; f)$ by $[N^{(\epsilon_o, m)}]^{\omega_m}$, where ω_m will in general depend on m . Thus, the rescaled blocked variables of relevance are

$$\phi_m(k; f) = [N^{(\epsilon_o, m)}]^{-\omega_m} \psi_m(k; f). \quad (27)$$

The value of ω_m will be fixed by the requirement that, as $m \rightarrow \infty$, and for some (critical) metric g_{crit} , (in general for an open set of such metrics), such normalized large scale block variables have a limiting probability distribution with a finite variance. Namely,

$$\begin{aligned} \lim_{m \rightarrow \infty} P_m(\{\phi_m(k; f)\}) &= P_\infty(\{\phi_\infty(f)\}), \\ E_{P_\infty}(\phi_\infty^2(f)) &= 1. \end{aligned} \quad (28)$$

Notice that if (Σ, g) is a *nice* manifold, e.g. a constant curvature simply connected three-manifold, we are obviously expecting that the corresponding ω_m is

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Thus, the asymptotic form of the field equation is identical to the Einstein-Maxwell theory, and the solution is just Reissner-Nordström. One can calculate the first order correction to the Reissner-Nordström solution by treating the dilaton terms as a perturbation and one finds

$$\lambda \sim 1 - \frac{2M}{r} + \frac{Q^2}{r^2} - \frac{Q^4}{5m^2r^6}, \quad (3.2a)$$

$$R \sim r \left(1 - \frac{2Q^4}{7m^4r^8} \right). \quad (3.2b)$$

Although the value of the dilaton mass is not known, one can place a lower limit from the fact that the $1/r^2$ force law has been confirmed down to scales of about 1 cm. This requires that the dilaton Compton wavelength be less than 1 cm or $m > 10^{-5}$ eV. It follows that for a solar mass black hole⁴, $Mm > 10^5$. In other words, the black hole is much larger than the Compton wavelength of the dilaton. In this case, the deviation from Reissner-Nordström remains small until one is well inside the event horizon: At the horizon, $\delta\lambda < (Q/M)^4(Mm)^{-2} \ll 1$ and $\delta R < (Q/M)^4(Mm)^{-4} \ll 1$. So outside the horizon, the solution will be very similar to Reissner-Nordström. Since $\phi \sim Q^2/m^2r^4 < (Q/M)^2(Mm)^{-2} \ll 1$, the dilaton remains small everywhere outside the event horizon. For $Q \approx M$, the inner horizon of Reissner-Nordström is close to the event horizon and the corrections due to the dilaton will still remain small there. So unlike the massless dilaton solution, a large black hole coupled to a massive dilaton can have two horizons. This is what one should expect physically. When $Mm \gg 1$, the dilaton is essentially stuck in the bottom of its potential well and does not affect the solution significantly.

Even though the dilaton does not qualitatively affect the geometry, it has an important consequence near the extremal limit. Like Reissner-Nordström, the horizons will coalesce in the extremal limit. However, the condition for when this occurs is no longer exactly $Q^2 = M^2$. The new condition is found by asking when λ has a double zero. If we substitute the unperturbed condition, $Q^2 = M^2$ and $r = M$, into the correction term in (3.2a) we find that to first order in the dilaton, $\lambda = 0$ is equivalent to

$$r^2 - 2Mr + \left(Q^2 - \frac{1}{5m^2} \right) = 0 \quad (3.3)$$

⁴ In geometrical units, the dilaton mass m has dimensions of inverse length and is related to the inverse Compton wavelength. On the other hand, the black hole mass M has dimensions of length and is related to the size of the black hole. Thus Mm is dimensionless. Alternatively, one can view all quantities as dimensionless and measured in Planck units.

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Majumdar-Papapetrou solution. In other words, the string metric describing several extremal black holes is obtained from the analogous Einstein-Maxwell solution by flattening either the time or space part of the metric (depending on the type of charge) leaving the rest unchanged.

The magnetically charged case is of particular interest. Recall that in the spatial part of the Reissner-Nordström metric, the horizon moves off to infinity as one approaches the extremal limit. The extremal geometry resembles an infinite throat attached to an asymptotically flat region. Since $g_{tt} = -1$ for the string solution, the horizon is now infinitely far away in timelike and null directions as well as spacelike. It has been suggested [15] that this type of geometry may play an important role in explaining what happens to the information that falls into a black hole, after it evaporates.

3. Solutions with a Massive Dilaton

We now wish to include the effects of the dilaton mass.³ Unfortunately, exact black hole solutions do not seem to be expressible in closed form. Given the simple form of the Reissner-Nordström (2.9) and massless dilaton (2.16) solutions, we will assume a metric of the form

$$ds^2 = -\lambda dt^2 + \lambda^{-1} dr^2 + R^2 d\Omega \quad (3.1)$$

where λ and R are functions of r only.

We first consider the asymptotic form of the solution. We are interested in solutions that are asymptotically flat, which requires that $\phi \rightarrow 0$ at infinity. For large r , the right hand side of the dilaton equation (1.2b) behaves like Q^2/r^4 , and the derivative term becomes negligible. The dilaton thus falls off like $|\phi| \sim Q^2/m^2 r^4$. Recall that a massless scalar field falls off as $1/r$ while a massive field with localized sources falls off exponentially. Here we have a massive field with a source that falls off polynomially, which results in the unusual asymptotic form of ϕ . Note that the limit $m \rightarrow 0$ keeping r fixed is not well behaved. This is because $|\phi| \sim Q^2/m^2 r^4$ only in the asymptotic region where r is large compared to the Compton wavelength of the dilaton, i.e. $rm \gg 1$.

Now consider the metric equation. At large distances, the Maxwell contribution to the stress tensor will be $O(1/r^4)$ while all terms involving the dilaton will fall off much faster.

³ This section is based work done in collaboration with J. Horne [16]. For another discussion of black holes with a massive dilaton see [17].

Proposed List of Ecoregional Working Groups

(list of coordinators)

S.No.	Ecoregional Working Group	Coordinator	Member
1.	West Himalaya	S.P. Singh, Professor and Head, Department of Botany, D.S.B. Campus, Kumaon University, Nainital – 263 002 Uttar Pradesh Tel.: 05942-35596(O) 35825(R) Fax 35576 Email: hbt@kumaon.ernet.in	
2.	Central Forest Belt & Central Highlands and Chhota Nagpur	N.K. Sanghi, MANAGE, Rajendrabad, Hyderabad – 500 030 Tel.: 040-4015677/4016702/4015253 Fax 040-4015388	<ul style="list-style-type: none"> • BASCON • B.D. Sharma, Bharat Jan Andolan
3.	Eastern Ghats	T. Pulliah, Ananthpur University	
4.	Gangetic Plains	Jamal Khan, Centre for Wildlife and Ornithology, Aligarh Muslim University, Aligarh Email: wsj@nde.vsnl.net.in	
5.	North-east India	R.S. Tripathi, Coordinator, Regional Centre NAEB, NEHU, Shillong – 793014	<ul style="list-style-type: none"> • North East Hill Council • P.S. Ramakrishnan, JNU
6.	West Coast	Prof. M.N. Madhyasta, Dept. of Biosciences, Mangalore University, Mangala Gangotri, Mangalore 574199. Tel: 08534-742276, 742347	<ul style="list-style-type: none"> • R. Damodaran, Division of Marine Biology, Microbiology and Biochemistry, School of Marine Sciences, Fine Arts Avenue, Cochin 682 016. Tel 0484 855396 • V.G. Bhatt, School of Ocean Science, P.G.Centre of Karnataka University, Kodibag, Karwar 581 303 Tel: 0484 855396 • H.C. Dube, Department of Life Sciences, Bhavnagar University, Bhavnagar, Gujarat Tel: 0278 420006-7
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8.	Aravalli Range	Ishwar Prakash, Zoological Survey of India, 107, K.N. Nagar, Jodhpur – 342 009.	<ul style="list-style-type: none"> • Rajender Singh, Tarun Bharat Sangh, Bhikampura-Kishori, via Thanagazi, Dist. Alwar 301002 Rajasthan Tel : 01465-25043; 0141-391092(Jaipur); Fax 0141-393178(Jaipur) • Arun Kumar

From paddy Thu Oct 9 19:02:51 1997
From: paddy (T.Padmanabhan)
To: nabhan
Subject: mm-pl deal
Date: Thu, 9 Oct 1997 19:02:50 +0500

----- Begin Included Message -----

>From asymp@prl.ernet.in Thu Oct 9 18:50:55 1997
From: asymp@prl.ernet.in (Astron. Astrophys. PRL)
Subject: Forms-request for abstracts.
To: arnab@physics.iisc.ernet.in (Prof. Arnab Rai Chaudhuri),
biman@rri.ernet.in (Dr Biman Nath),
bpaul@tifrvax.tifr.res.in (Dr. Biswajit Paul),
anand@prl.ernet.in (Dr. B.G.A. Rao),
chandra@prl.ernet.in (T CHANDRASEKHAR),
chengalur@cra.tifr.res.in (Dr. Jayaram Chengalur),
chokshi@iiap.ernet.in (Dr. Arti Chokshi),
dna@tifrvax.tifr.res.in (Dr. D N Narsimha),
akk@iucaa.ernet.in (Prof. Ajit Kembhavi),
paddy@iucaa.ernet.in (Prof. T. Padmnabhan),
partha@iiap.ernet.in (Prof. M. Parthasarthy),
pati@iiap.ernet.in (Prof. AK Pati),
pnbhat@tifrvax.tifr.res.in (Prof. P N Bhat),
chitre@tifrvax.tifr.res.in (Prof. S. M. Chitre),
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hcbhatt@iiap.ernet.in (Prof. Harish C. Bhatt),
dcvmlk@iiap.ernet.in (Prof. DCV Mallik),
ojha@tifrvax.tifr.res.in (Dr. Devendra K Ojha),
vijay@gmrt.ernet.in (Vijay K Kapahi),
singh@tifrvax.tifr.res.in (Dr. K.P. Singh),
vaggiap@iiap.ernet.in (Dr. A Vagishwari),
root@upso.ernet.in (Dr. Vijay Mohan)

Date: Thu, 9 Oct 1997 16:53:49 +0530 (IST)
X-Mailer: ELM [version 2.4 PL24]
Mime-Version: 1.0
Content-Type: text/plain; charset=US-ASCII
Content-Transfer-Encoding: 7bit
Content-Length: 2049

Dear Invited Speaker,

I am pleased to learn that you have been kind enough to accept the invitation to deliver a talk on the specified topic at the XVIII Annual Meeting of The Astronomical Society of India being held at the Physical Research Laboratory, Ahmedabad during Nov. 28 - Dec. 1, 1997. It would be nice to include an abstract of your talk in the book of abstracts to be given to the participants when they register. I, therefore, request you to kindly send an abstract (about one page- maximum two pages) of your talk by e-mail using, preferably LaTeX or simple dos/unix editor at the earliest and before Oct. 20.

I also request you to please provide the information which will help us make your stay comfortable. In this connection I request you to complete the pre-registration and accommodation forms (attached herewith).

Visits

			<ul style="list-style-type: none"> Sachin Sachdeva, Aravali Patel Bhavan, HCM-RIPA, Jawaharlal Nehru Marg, Jaipur - 302 017 Email: aravali@raj.raj.nic.in ???????
9.	Shivaliks	<p>S.P. Goyal, Wildlife Institute of India, P.O. Box No. 18, Chandrabani, Dehradun - 248 001 Tel.: 0135 - 640111-15 Fax: 0135 - 640117 Email: goyalsp@wii.gov.in</p>	<ul style="list-style-type: none"> Neelima Jerath, Punjab State Council of Science and technology, Chandigarh

The Physics Society

St. Stephen's College

University of Delhi

Delhi 110007

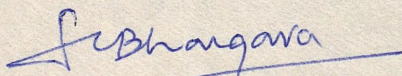
27th November, 1997.

Dear Professor Padmanabhan,

It has been decided by the Popli Memorial Fund Committee that Rs 1000/- be paid per lecture for the preparation and collection of material for the Popli Memorial Lecture Series.

The sum of Rs 4000/- that we are paying you for the four wonderful lectures on *Structure Formation* you have delivered cannot of course compensate you for the effort you have made and for the time you have spent with our students (not to mention your superb lecture on *The laziness of Physical Systems*). Please accept it as a token of our appreciation.

Yours sincerely,



(Dr. S. C. Bhargava)
Adviser.

Visits

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Bell.**Proposed List of Ecoregional Working Groups**
(list of coordinators)

S.No.	Ecoregional Working Group	Coordinator	Member
1.	West Himalaya	S.P. Singh, Professor and Head, Department of Botany, D.S.B. Campus, Kumaon University, Nainital – 263 002 Uttar Pradesh Tel.: 05942-35596(O) 35825(R) Fax 35576 Email: hbt@Kumaon.ernet.in	
2.	Central Forest Belt & Central Highlands and Chhota Nagpur	N.K. Sanghi, MANAGE, Rajendrabad, Hyderabad – 500 030 Tel.: 040-4015677/4016702/4015253 Fax 040-4015388	
3.	Eastern Ghats	T. Pulliah, Ananthpur University	
4.	Gangetic Plains	Jamal Khan, Centre for Wildlife and Ornithology, Aligarh Muslim University, Aligarh Email: wsi@nde.vsnl.net.in	
5.	North-east India	R.S. Tripathi, Coordinator, Regional Centre NAEB, NEHU, Shillong – 793014	North East Hill Council
6.	West Coast	? Madhyasta, Bangalore University	
7.	East Coast	L. Kannan, Centre for Advanced Studies in Marine Biology, Portonova Parangipettai P.O. Tamil Nadu. – 608502 Tel: 04144-83223 Fax: 04144-83555 Email: amcasmb@md4.vsnl.net.in	<ul style="list-style-type: none"> • A.V. Raman, Division of Marine Bniology, Andhara University, Vishakhapatnam – 500 003 Tel.: 0891-554871 • D.Sathapathy, College of Fisheries, Orissa University of Agriculture and Technology, Rangailunda Behrampur – 760 007 • M.S.M. Sahabur Hussain, Department of Zoology, V.O.C. College, Tuticorin – 628 008, Tamil Nadu Tel.: 0461 – 320175 (College) 0461 – 322173 (res.)
8.	Aravalli Range	Ishwar Prakash, Zoological Survey of India, 107, K.N. Nagar, Jodhpur – 342 009.	<ul style="list-style-type: none"> • Tarun Bharat Sangh • Arun Kumar • Sachin Sachdeva, Aravali Patel Bhavan, HCM-RIPA, Jawaharlal Nehru Marg, Jaipur – 302 017 Email: aravali@raj.raj.nic.in ???????
9.	Shivaliks	S.P. Goyal, Wildlife Institute of India, P.O. Box No. 18, Chandrabani, Dehradun – 248 001 Tel.: 0135 – 640111-15 Fax: 0135 – 640117 Email: goyalsp@wii.gov.in	<ul style="list-style-type: none"> • Neelima Jerath, Punjab State Council of Science and technology, Chandigarh

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elements of the Lie algebra will often carry abstract indices i, j, k, \dots , and fields on $\tilde{\Sigma}$, abstract indices a, b, c, \dots . Thus the three fields will be denoted by χ_a^i, X_i^a and K_i^a . Any homogeneous (right invariant) tensor field can be expanded in the basis X_i^a, χ_a^i with constant components. For instance, the metric \tilde{q}_{ab} may be written

$$\tilde{q}_{ab} = \tilde{q}_{ij} \chi_a^i \chi_b^j, \quad (3.18)$$

where \tilde{q}_{ij} are constants on $\tilde{\Sigma}$ and tensors on \mathcal{G} .

In the literature on Bianchi models, one generally restricts oneself to globally homogeneous spaces. Furthermore, one often assumes that that the group G – and hence $\tilde{\Sigma}$ – is simply connected, thereby ignoring the role of topology almost entirely. (Notable exceptions are the papers by Ellis [13] and Osinovsky [14].) In the main part of this section, not only shall we allow G to be non-simply connected but also drop the assumption that the spatial 3-manifold is isomorphic with G . Thus, we will work with (local) homogeneity rather than global homogeneity.

Homogeneous spaces: In broad terms, a space is said to be homogeneous if it has the structure described above, but *only locally*. More precisely, (Σ, q_{ab}) will be said to be a homogeneous space if: i) given any $p \in \Sigma$, there exists \mathcal{U}_p , an open neighborhood of p , such that \mathcal{U}_p is isometric to an open neighborhood $\tilde{\mathcal{U}}$ of $\tilde{\Sigma}$; and, ii) if the neighborhoods \mathcal{U}_p and $\mathcal{U}_{p'}$ overlap, and K_i^a and $(K')_i^a$ are induced on them from $\tilde{\mathcal{U}}$ and $\tilde{\mathcal{U}}'$ respectively, then there exists a Lie algebra automorphism $F: \mathcal{G} \rightarrow \mathcal{G}$, such that $K_i^a = F_i^j K_j^a$ in the overlap. (Since our definition of global homogeneity itself implies that the Killing vectors are linearly independent at each point of $\tilde{\Sigma}$ the automorphism F_i^j is necessarily invertible.) The homogeneous space (Σ, q_{ab}) is thus “modeled” on the globally homogeneous space $(\tilde{\Sigma}, \tilde{q}_{ab})$ much in the same way as an n -manifold is modeled on \mathbb{R}^n .

In contrast with the globally homogeneous case, on a homogeneous space, neither the Killing fields nor the triads (nor co-triads) need be defined globally, although the metric q_{ab} is. In every patch \mathcal{U}_p , the Killing vectors K_i^a provide us with triads X_i^a (and co-triads χ_a^i) via $\mathcal{L}_{K_i} X_j^a = 0$; these are unique up a global rotation within \mathcal{U}_p . Since in the overlap region between \mathcal{U}_p and $\mathcal{U}_{p'}$ the two sets of Killing fields are constant linear combinations of each other, $(K')_i^a = F_i^j K_j^a$, it follows that the two sets of triads are also constant linear combinations of each other $(X')_i^a = \Lambda_i^j X_j^a$. (Furthermore, one can use the freedom of global rotations within in each patch to make Λ_i^j equal to F_i^j . However, this will not be necessary to any of our arguments.)

A simple example of a space which is homogeneous but *not* globally homogeneous can be constructed as follows. Consider the unit cube in the 3-dimensional

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(list of coordinators)

S.No.	Ecoregional Working Group	Coordinator	Member
1.	Trans-Himalaya	Yash Veer Bhatnagar, Wildlife Institute of India, P.O. Box No. 18, Chandrabani, Dehradun - 248 001 Tel.: 0135 - 640111-15 Fax: 0135 - 640117 Email: yash@wii.gov.in	Ladakh Eco Development Group
2.	West Himalaya	S.P. Singh, Professor and Head, Department of Botany, D.S.B. Campus, Kumaon University, Nainital - 263 002 Uttar Pradesh Tel.: 05942-35596(O) 35825(R) Fax 35576 Email: hbt@kumaon.ernet.in	
3.	Western Ghats	Ranjith Daniels, M.S. Swaminathan Research Foundation, 3 rd Cross St. Institutional Area, Taramani, Chennai 600 113; Tel:044-2351229/2351698, Fax: 2351319 Email: rjrdaniels@hotmail.com	Jai Samant, Kolhapur Univ Director KFRI Prof Almeida, Thane
4.	Central Forest Belt	N.K. Sanghi, MANAGE, Rajendrabad, Hyderabad - 500 030 Tel.: 040-4015677/4016702/4015253 Fax 040-4015388	BASCON B.D. Sharma, Bharat Jan Andolan
5.	Central Highlands and Chhota Nagpur	this ecoregion needs to be reconsidered, as there is some confusion about its distinction from the ecoregion above)	
6.	Eastern Ghats	T. Pulliah, Ananthpur University	
7.	Gangetic Plains	Jamal Khan, Centre for Wildlife and Ornithology, Aligarh Muslim University, Aligarh Email: wsi@nde.vsnl.net.in	
8.	North-east India	R.S. Tripathi, Coordinator, Regional Centre NAEB, NEHU, Shillong - 793014	North East Hill Council P.S. Rama Krishnan, JNU
9.	West Coast	? Madhyasta, Bangalore University	NFF reps
10.	East Coast	L. Kannan, Centre for Advanced Studies in Marine Biology, Portonova Parangipettai P.O. Tamil Nadu. - 608502 Tel: 04144-83223 Fax: 04144-83555 Email: amcasmb@md4.vsnl.net.in	NFF reps
11.	Aravalli Range	Ishwar Prakash, Zoological Survey of India, 107, K.N. Nagar, Jodhpur - 342 009.	Tarun Bharat Sangh Arun Kumar Sachin Sachdeva
12.	Shivaliks	S.P. Goyal, Wildlife Institute of India, P.O. Box No. 18, Chandrabani, Dehradun - 248 001 Tel.: 0135 - 640111-15 Fax: 0135 - 640117 Email: goyalsp@wii.gov.in	Neelima Jerath, Punjab State Council of Science and technology, Chandigarh

January 18, 1997

To : All Speakers/Participants of the Discussion Meeting on High Redshift Universe. (February 23 -28, 1997)

Dear Colleague,

This will hopefully be the final circular regarding scientific programme for the Coorg meeting. I am enclosing herewith the lecture schedule of the meeting.

If you are an invited speaker I would be grateful if you get in touch with other speakers who are lecturing on related areas and coordinate your lecture material accordingly. In particular it would be good to avoid overlaps and maintain consistency of notation etc. to the extent possible. During this discussion you may feel that certain readjustments of topics or even rescheduling of lectures may be needed. To the extent you can work these things out among yourselves, feel free to do so but please keep me informed so that I also know what the final programme is like. You will notice that the slots on the last day are still kept free for general discussion. I expect to finalise this somewhat closer to the date of the conference and will let you know as soon as it is fixed.

All local organisation including transport to Coorg and back etc. are handled by Professor G. Srinivasan (srini@ri.ernet.in) and in case you have any questions or queries in this matter please contact him directly. It would be helpful if you let him know your date of arrival, departure etc. so that necessary plans can be made.

Looking forward to meeting you in Coorg.

With best regards,

yours sincerely,

T. Padmanabhan

Encl : as above

NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN – INDIA

LIST OF ECOREGIONAL WORKING GROUP COORDINATORS

S.No.	Ecoregion	Coordinator	E mail address
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10.	Shivaliks	H.S. Mehta, Zoological Survey of India, High Altitude Zoology Field Station, Jandev Niwas, Hospital Road Solan-173212 (H.P.)	

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Ladakh Ecodiv. - ~~See Below~~ Group

West Himalaya: S.P. Singh, Professor and Head, Department of Botany, D.S.B. Campus, Kumaon University, Nanital – 263 002 Uttar Pradesh Tel.: 05942-35596(O) 35825(R) Fax 35576 Email: hbt@kumaon.ernet.in

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*Jai Samant, Kolhapur Univ. Prof. Almeida, Thane (ask vHearsh)
Director, KFR 1*

Central Forest Belt: N.K. Sanghi, MANAGE, Rajendrabad, Hyderabad – 500 030 Tel.: 040-4015677/4016702/4015253 Fax 040-4015388

Central Highlands and Chhota Nagpur (this ecoregion needs to be reconsidered, as there is some confusion about its distinction from the ecoregion above)

*BASCON
B.D. Sharma, Bharat Jan Andolan
V.B. Sawarkar, WII*

10?

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Gangetic Plains: Jamal Khan, Centre for Wildlife and Ornithology, Aligarh Muslim University, Aligarh Email: wsj@nde.vsnl.net.in

North-east India: R.S. Tripathi, Coordinator, Regional Centre NAEB, NEHU, Shillong – 793 014

West Coast: ? Madhyasta, Bangalore University

*P.S. Ramakrishnan, JNU
N-E Hill Council?
NFF seps -*

East Coast: L. Kannan, Centre for Advanced Studies in Marine Biology, Portonova

NFF seps -

Aravalli Range: Ishwar Prakash, Zoological Survey of India, 107, K.N. Nagar, Jodhpur – 342 009.

*Tarun Bharat Sangh Sachin Sachdeva?
Arun Kumar*

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Neelima Telath, PCS&T

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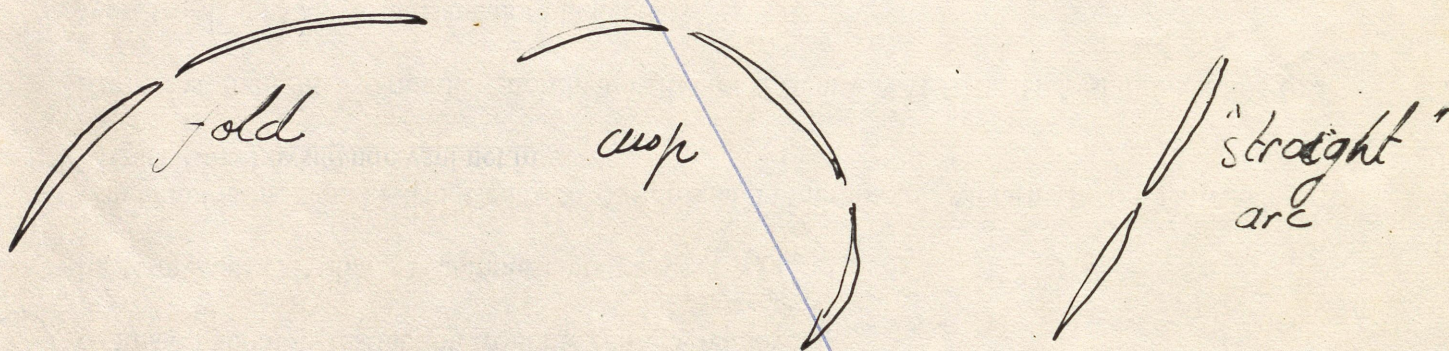
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L. Kannan, Director, Centre of Advanced Study in Marine Biology
Parangipettai P.O., Tamil Nadu 608 502
Phone : 04144 - 83223
Fax : 04144 - 83555
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Strong Lensing and Cluster Dynamics

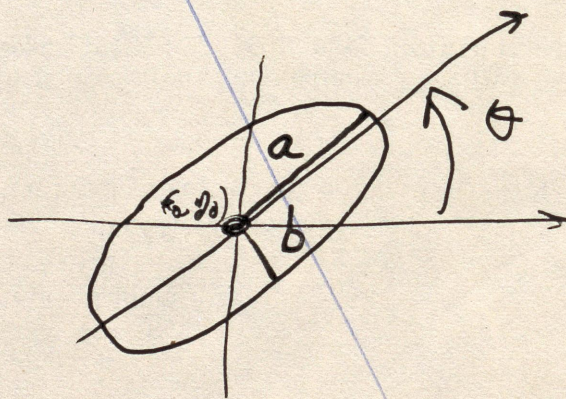
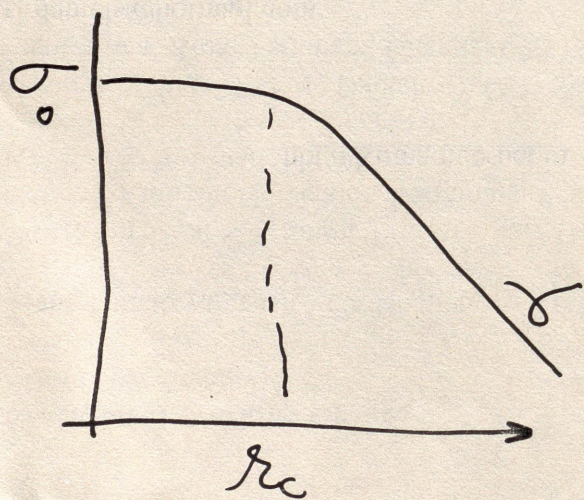
• Strong Lensing \equiv Magnification > 10

\rightarrow Giant arcs and multiple arcs

• Basically: need to look at structure/surface brightness/colors in arcs to infer the probable lens configuration



Then: Infer a probable mass distribution



Ecoregional Working Groups
(list of coordinators)

Trans-Himalaya: Yashveer Bhatnagar, Wildlife Institute of India

West Himalaya: S.P. Singh, Kumaon University

Western Ghats: Ranjit Daniels, MSSRF

Central Forest Belt: N.K. Sanghi, MANAGE

Central Highlands and Chhota Nagpur (this ecoregion needs to be reconsidered, as there is some confusion about its distinction from the ecoregion above)

Eastern Ghats: ~~Kameshwara Rao, Andhra University~~ Prof T. Pulliah, Anantpur University

Gangetic Plains: Jamal Khan, Aligarh Muslim University

North-east India: (PC Bhattacharjee to be asked) RS Tsipathi

West Coast: ? Madhyasta, ^MBangalore University

East Coast: ? ~~Raman, Andhra University~~ Dr Kannan, CAS, Portonova

Aravalli Range: Ishwar Prakash, School of Desert Sciences?

Shivaliks: ~~Neelam Jerath, Punjab State Council for S&T~~, or S.P. Goel, Wildlife Institute of India

^{yal}
better choice acc to Sarat

goyal.sp@
wii.gov.in

* Entries made in pen are suggestions by Dr. Sarat Babu

* If accepted

- RS Tsipathi to be removed from Meghalaya SSC
- ~~Prof Raman~~ Dr. Kannan to be shifted out from TN SSC

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CATEGORIES FOR INTER-STATE ECOREGIONAL WORKING GROUPS

1. **Trans-Himalayan** (including Tibetan)
2. **West Himalayan** (including North-West, West, and Central Himalaya)
3. **Western Ghats**
4. **Central Forest Belt** (including adjoining areas of MP, AP, Orissa, and Maharashtra)
5. **Central Highlands and Chhota Nagpur Plateau**
6. **Eastern Ghats**
7. **Gangetic Plains**
8. **North-East India** (including Brahmaputra Valley, Assam Hills, and Eastern Himalayas)
9. **West Coast**
10. **East Coast**
11. **Aravalli Range**
12. **Shivalik Range**

not small enough. From (8), for $H_0 = 30$, we obtain $\Omega = 1$ only if $\eta_{10} \approx 10$, which is untenable.

(c) Magnetic Fields, Turbulence, Clumping

Lensing determinations of total masses of clusters give, in a few cases, masses higher by factors 2–2.5 than the total masses obtained in the x-ray analyses (Miralda-Escudé & Babul 1994, Bartelmann & Narayan 1995). If the x-ray total masses are too small by this factor, that would go more than halfway toward resolving the crisis. This has given rise to the suggestion that the x-ray assumption of thermal hydrostatic equilibrium is wrong. If magnetic pressure, for example, is in equipartition with thermal pressure in the hot gas, we can add this to the hydrostatic equation. The mass of hot gas remains the same, but the total (gravitational) mass inferred doubles, so that f_{50} is reduced by a factor 2. If turbulence is also in equipartition, the total mass triples.

The fields needed are large. Loeb & Mao (1994), requiring equipartition, predict specifically $B \sim 50 \mu G$ in the cluster A2218, where there are no measurements of B . This may be important in a few clusters, but we doubt that it can provide a general solution to the crisis. The Coma cluster field is not nearly large enough (Kim et al. 1990), and cluster fields generally are thought to be $\sim 1 - 2 \mu G$ (Kronberg 1994).

The lensing determinations have their own problems, and need refinements in some cases (Bartelmann & Narayan 1995). Cluster masses have also been determined by the familiar use of galaxy velocity dispersions (“virial-theorem masses”). These are subject to factor-of-2 systematic errors arising from models of orbit shapes and of the radial mass distributions, but (within errors) they agree with the x-ray masses (WNEF, Mushotzky 1995). The galaxies (unlike the gas) cannot be supported by B -fields and turbulence, so the agreement between x-ray and virial-theorem masses puts some limit on the importance of fields and turbulence.

There is also a related suggestion that the gas may be strongly clumped. Since the emissivity of the gas goes as n^2 , clumping increases the pressure but reduces the mass of gas required (WNEF) and reduces f_{50} . One might then expect to see a superposition of many different temperatures (in different clouds) in the x-ray data. There is no evidence of this. We also have to question the stability of such a clumped system. If some kind of equilibrium is maintained, then something, e.g., a large B -field ($> 50 \mu G$ in A2218!), must supply pressure in the voids yet remain outside the clouds—astrophysically a bizarre situation. If there is no equilibrium, we could think of the clouds as moving freely on orbits. In either case, the clouds might dissipate rapidly. And in either case, the calculation of total mass from x-ray data would be erroneous, and the existing agreement between the x-ray and virial-theorem masses would be an accident (WNEF).

CATEGORIES FOR INTER-STATE ECOREGIONAL WORKING GROUPS-
14.03.2000

1. **Trans-Himalayan**
 - (a) Tibetan
2. **West Himalayan**
 - (a) North-West Himalaya
 - (b) West Himalaya
 - (c) Central Himalaya
3. **Western Ghats**
 - (a) Western Ghat Mountains
4. **Central Forest Belt**
 - (a) Deccan Plateau South
 - (b) Central Plateau
 - (c) Eastern Plateau
5. **Central & Eastern Hill/Plateau**
 - (a) Chhota-Nagpur
 - (b) Central Highlands
6. **Eastern Ghats**
7. **Gangetic Plains**
 - (a) Upper Gangetic Plain
 - (b) Lower Gangetic Plain
8. **North-East India**
 - (a) Brahmaputra Valley
 - (b) Assam Hills
 - (c) Eastern Himalayas
9. **West Coast**
10. **East Coast**
11. **Aravalli Range**
12. **Shivaliks**

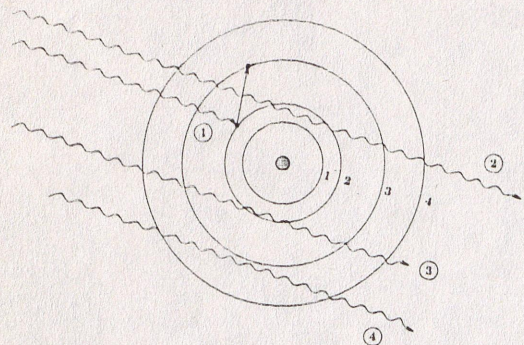


Figure 2.13: When photons of different wavelengths pass through hydrogen atom, only those with specific wavelength will get absorbed. This is because only photons with certain wavelengths will have energies corresponding to the energy difference between the levels of the hydrogen atom. In the figure the photon marked 1 has been absorbed by an electron which makes a transition to a higher level. Other photons like 2, 3 and 4 pass through the hydrogen atom unhindered. (It is assumed that all the photons 1 to 4 have energy less than 13.6 eV.)

$(15 - 13.6) \text{ eV} = 1.4 \text{ eV}$. That is, the electron will escape from the hydrogen atom and will be moving freely with a kinetic energy of 1.4 eV. We have thus separated the electron from the proton in the hydrogen atom and converted matter from the gaseous state to the plasma state. This process of ionizing the atom (that is, dissociating the atom into electron and positively charged ion) is called "photo-ionization". (Earlier we discussed a procedure for ionizing atoms by colliding them together; that process is called "collisional ionization".) The same principle also works in the case of other systems like heavier atoms, molecules etc. All of them can be ionized by sufficiently high energy photons. This is one of the reasons why high frequency radiation can cause structural damage to materials. (Incidentally, this discussion also shows that photons with *any* energy greater than 13.6 eV will be absorbed by the hydrogen gas.)

The nucleus of the atoms can also exist in different energy levels. When the nucleus makes a transition between two such levels, it can emit very high energy photons. Since nuclear energy levels run to millions of electron volts, the photons emitted from the nucleus have frequencies upwards of $2 \times 10^{20} \text{ Hz}$; that is, they are gamma rays.

The above description of absorption and emission of radiation is based on the picture of photons. Since radiation can be thought of either as photons or as waves, you may wonder how the same phenomena can be described in terms of waves. For example, are radio waves made of photons? At a basic level the answer is, of course, 'yes'. But as we said before, if the wavelength of radiation is comparable to other length scales involved in the problem, then it is better to think of electromagnetic radiation as a wave. For visible light, the wavelength is like 50 millionth part of a centimeter; clearly this is tiny compared to everyday scales. Radio waves, in contrast, could be tens or hundreds of meters in wavelength which could be comparable or bigger than other length scales in the system. In that case one may think of electromagnetic radiation as "waves" which are being emitted by the motion of electrically charged particles. Whenever a charged particle moves with a variable speed, its kinetic energy changes and the difference in kinetic energy could be radiated in the form of electromagnetic radiation. You would have noticed that in any process involving the emission of electromagnetic radiation the energy of the charged particle changes. In the photon picture, this arises because the system emitting the radiation makes a transition from one energy level to another. In the wave picture this arises because the kinetic energy of the charged particle changes.

One important example of radiation arising from motion of charged particles is called the "synchrotron radiation". This radiation arises when a charged particle moves very rapidly in a magnetic field. The key effect of the magnetic field on a charged particle is to make it move in a spiraling manner along the direction of the magnetic field. During such a motion the particle is constantly accelerated and will radiate energy. Astrophysical systems invariably contain magnetic fields which could influence the motion of the charged particles. As a result synchrotron radiation is of primary importance in astrophysics and usually occurs in a wave band stretching from centimeters to meters. This is the wavelength below standard AM (around 300 meters wavelength) and FM (around 3 meters wavelength) used in radio transmissions. Radio astronomers have very effectively used the synchrotron radiation as a probe of astrophysical systems.

There is one special kind of radiation which plays a vital role in astrophysics called thermal radiation. This is the radiation emitted by any hot body due to its temperature. You know that when an iron rod is heated to a high temperature it emits light of predominantly red colour; we say that the iron is "red hot". This is merely a particular case of a very general phenomena. When

CATEGORIES FOR INTER-STATE ECOREGIONAL WORKING GROUPS-
14.03.2000

Coord.

1. **Trans-Himalayan**
(a) Tibetan
2. **West Himalayan**
(a) North-West Himalaya
(b) West Himalaya
(c) Central Himalaya
3. **Western Ghats**
(a) Western Ghat Mountains
4. **Central Forest Belt**
(a) Deccan Plateau South
(b) Central Plateau
(c) Eastern Plateau
5. **Central & Eastern Hill/Plateau**
(a) Chhota-Nagpur
(b) Central Highlands
6. **Eastern Ghats**
7. **Gangetic Plains**
(a) Upper Gangetic Plain
(b) Lower Gangetic Plain
8. **North-East India**
(a) Brahmaputra Valley
(b) Assam Hills
(c) Eastern Himalayas
9. **West Coast**
10. **East Coast**
11. **Aravalli Range**
12. **Shivaliks**

Yashveer Bhatnagar, WII

S.P. Singh, Kumaon Univ.

Ranjit Daniels, MSSRF

N.K. Sanghi, MANAGE, Hyd.

Kameshwara Rao, Andhra Univ.

Jamal A. Khan, AMU

(Asic PCB) Abhesh
Gangwal, IIS

Prof. Madhyasta, B'lore Univ.

Prof. Raman, Andhra Univ.

Ishwar Prakash.

Neelam Jeeath / SP Goel, WII

goelsp@wii.gov.in

EDG General user

ashish kothari

From: Madhu Sarin <msarin@satyam.net.in>
To: Kanchi Kohli <nbsapna@vsnl.net>; Dr Vibha Ahuja/Anil <biotech@nda.vsnl.net.in>; ashish kothari <ashish@giasdl01.vsnl.net.in>
Subject: Fw: InfoNota: New WEB site of the Ecoregional Fund
Date: Tuesday, February 20, 2001 8:22 AM

Might this be useful as a link to the NBSAP website?
Madhu

----- Original Message -----

From: INFOANDINA <infoandina@cgiar.org>
To: Mountain Forum <mtn-forum@lyris.bellanet.org>
Sent: Tuesday, February 20, 2001 3:03 AM
Subject: InfoNota: New WEB site of the Ecoregional Fund

Dear Mountain Forum Colleagues,

We have the pleasure to announce the new WEB site of the Ecoregional Fund, created to support the development of methodologies for research that is ecoregional in scope and for enhancing the implementation of new approaches to natural resource management and rural development in ecoregions.

This WEB has the following sections:

- * What is Ecoregional Research <eco.htm>
- * Background to the Fund <about.htm>
- * Projects Funded <projects.htm>
- * Contact Details <contact.htm>

This WEB site includes a description of all the projects funded by the Ecorregional Fund, including:

- Regional scaling of field-level economic-biophysical models: (DME-NOR)
- Integrating remote sensing, GIS, and modeling for land use monitoring in the arid semi-arid Andes: (DME-SUR)

For more information, visit their WEB site at:
<http://www.cgiar.org/isnar/eco/index.htm>

Best regards,

Ing. Ana Maria Ponce
CONDESAN - InfoAndina
Nodo Regional del Foro de Montañas - América Latina
E-mail : InfoAndina@cgiar.org
WWW : <http://www.condesan.org>

*** El boletín Infoandina es una publicación a cargo de la
Cordinación de CONDESAN
Enviar sus contribuciones a: <Infoandina@cgiar.org>

quent involvement); for the remaining 4% it was an integral part of their Daily Life (very important and a daily involvement).

Predictors of Personal Response and Importance Ratings. Demographic variables made few differences in these ratings. People from households with children more often mentioned that being outdoors gave them time to Think. And elderly respondents less often described their feelings while outdoors as Enjoyable. None of the six demographic variables (age, sex, income, urban/rural background, length of residence in Detroit, or household type) made a significant difference in the Perceived Value of nature contacts.

Noteworthy Points. These results clearly show high perceived value of nearby nature among a sample of urban blacks, whose opportunities to enjoy nature are limited and whose needs for nearby nature have been questioned by other researchers. There were no significant differences by income or background in the importance of nature contacts.

Ed. note. Portions of this study are also discussed in:

- Talbot, J. F. (1988). Planning concerns related to urban nature environments: The role of size and other physical features. In J. L. Nasar (Ed.), *Environmental aesthetics: Theory, research, and applications*. New York: Cambridge University Press.
- Kaplan, R., & Talbot, J. F. (1988). Ethnicity and preference for natural settings: A review and recent findings. *Landscape and Urban Planning*, 15, 107-117.

Discussion here focuses on the importance of the natural environment. This study is also included in Appendix B, where the focus is on the preference aspects, based on ratings of photographs.

JUDGING THE SIZES OF URBAN OPEN AREAS: IS BIGGER ALWAYS BETTER?

Janet F. Talbot and Rachel Kaplan (1986)
Landscape Journal, 5, 83-92

Overview. This study explored the perceived sizes of different urban nature areas. The results showed that par-

ashish kothari

*EWG
low
(maps)
(GENERAL)*

Page 2

From: Dr. Ravi Chellam <ravic@wii.gov.in>
To: ashish kothari <ashish@giasdl01.vsnl.net.in>
Cc: Bansuri Taneja <swansong@giasdl01.vsnl.net.in>; BCIL <bcil@giasdl01.vsnl.net.in>; Kalpavriksh <kvriksh@vsnl.com>
Subject: Maps
Date: Wednesday, June 14, 2000 11:16 PM

Dear Ashish, It will be great if you can manage an explicit acknowledgement to the GIS centre of WII for assistance with the map preparation during the INW. The individual to be thanked is Dr Navneet Gupta, a personal email to him after the INW (and also after you have seen and used the map), will go a long way <guptank@wii.gov.in>

Your earlier idea of using one map for demarcating many categories of our spatial interest does not sound OK to me for the simple reason that it will get overloaded with detail and very confusing. Moreover the scale at which we are operating for ecoregions and substate sites will be different and in fact ecoregions will mask the other layer of information. In short what I am saying is that for each category of information we need to use separate maps especially if it is at the National scale.

Hope all of this makes sense and is useful. Yes, I remember the pending stuff due from me; reviews of the national documents with special reference to wildlife and the note on data quality/ reliability. I am working on them and will send them as soon as I am happy with them, any way no later than tomorrow. Apologies for this last minute thing. Did any of you detect the virus in Dr Wafar's attachment?

Best wishes to all of you, Ravi

*SP
|| Pl. remind me after INW ?
Could also be part of "thanks" at end of workshop*

Visit FRLHT's Home Page
<http://education.vsnl.com/frlht>

Darshan Shankar
Director FRLHT
Email Address : darshan@frlht.ernet.in
Voice : Off. 91-080-333 6909
91-080-333 0348

Page 1

Sirsi - 581 402

**STATE
of the
WORLD
FORUM**

May 31, 2000

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Tansu Çiller
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Sonia Gandhi
Chair, Rajiv Gandhi Foundation

Jane Goodall
Primatologist

Ruud Lubbers
Chairman, World Wildlife Fund

Thabo Mbeki
President, Republic of South Africa

Gertrude Mongella
Secretary General, UN World
Conference on Women, Beijing

Yasuhiro Nakasone
Prime Minister, Japan (1982-1987)

Wally N'Dow
Secretary General, Habitat II, Istanbul

Her Majesty Queen Noor
Jordan

Lea Rabin
First Lady of Israel (1992-1995)

Jose Ramos-Horta
Nobel Peace Prize Laureate

Jehan Sadat
First Lady of Egypt (1970-1981)

Ted Turner
Vice Chairman, Time Warner, Inc.

Desmond Tutu
Nobel Peace Prize Laureate

Elie Wiesel
Nobel Peace Prize Laureate

Marian Wright Edelman
President, Children's Defense Fund

Muhammad Yunus
Managing Director, Grameen Bank

Dear Ashish,

I would like to start by thanking you for your support over the past several years. The State of the World Forum has been immeasurably enriched by your participation in our various conferences. It is in this spirit that I want to inform you about a potentially historic event we are planning this year, and on behalf of Mikhail Gorbachev and the Co-Chairs of the Forum, invite you to participate.

Working with partners worldwide, the Forum will convene a high level gathering of international leaders of business and civil society at the New York Hilton & Towers this September 4 - 10. Forum 2000 is timed to coincide with the United Nations Millennium Summit, expected to bring together over 100 Heads of State, the largest gathering of government leaders in modern history.

Our intent in juxtaposing Forum 2000 with the UN Millennium Summit is to create a "global town meeting" in which acknowledged world leaders in business, finance, labor, science and technology, the environment, human rights, religion, and civil society will join in substantive dialogue with selected Heads of State on the great issues confronting all of us as we enter the era of globalization.

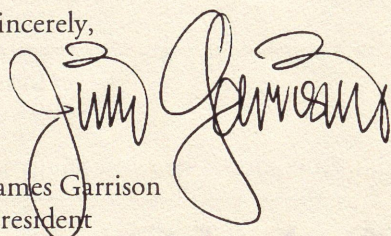
We do not know of another occasion when this many leaders from so many nations and disciplines will be gathered together for common dialogue on issues of such import.

The enclosed Schedule of Events will provide you with the scope and depth of the event, and includes a list of confirmed speakers, program themes and partnerships to date.

We have also included a registration form should you wish to register. Because of our appreciation for your past participation as a speaker in a previous Forum event, we are happy to extend a reduced registration fee which would simply cover the event hard costs (\$325 per day for meals and materials) related to your participation. In addition, we would be grateful if you would cover your travel and accommodation expenses.

It is my sincere hope that you will join us, as Forum 2000 is shaping up to be one of those rare moments in history when human ideals and opportunity can come together to produce genuine change.

Sincerely,



James Garrison
President

EW 5
GOM

ashish kothari

From: Dr. Ravi Chellam <ravic@wii.gov.in>
To: ashish kothari <ashish@giasdl01.vsnl.net.in>
Cc: Bansuri Taneja <swansong@giasdl01.vsnl.net.in>; BCIL <bcil@giasdl01.vsnl.net.in>
Subject: Ecoregion map
Date: Thursday, June 08, 2000 1:21 PM

I have made the following decisions regarding the boundaries of the ecoregions for generating the map.

1. West Himalaya: Will include WII's 2A & 2B, which are Northwest and West Himalaya.
2. Central Forest belt + Central Highlands + Chhota Nagpur: This will include WII's new 6A (old 6E) Central highlands and new 6B (old 6D) Chhota Nagpur in their entirety and old & new 6C Eastern Highlands, out of which the part pertaining to Eastern Ghats will be marked out separately. Ashish there are some discrepancies in the minutes and I will respond separately for this.
3. Eastern Ghats: I have included based on the topo features in an Atlas. This will be a discontinuous zone and not take into account the intervening lowlands.
4. Gangetic plains: WII's 7A & 7B, Upper and Lower Gangetic plains. Out of this will be marked out the Shivalik range.
5. Northeast India: Will include Sikkim. Only political boundaries are used here.
6. West Coast: The entire length.
7. East Coast: The entire length.
8. Aravalli range: Marked based on topo features from a Atlas.
9. Shivalik range: This a very narrow and linear topo feature sandwiched in certain places between West Himalaya and Gangetic plains and in other places needs to be marked out of the Gangetic plains. Using the topo features in an atlas this has also been marked.

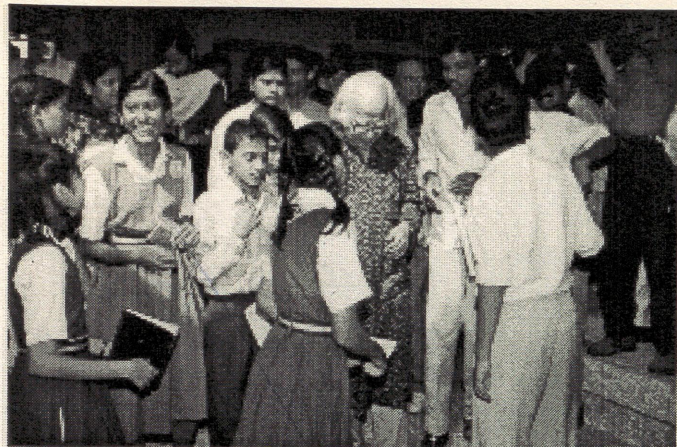
The important thing to remember is that this map is purely indicative of the locations of the zones and cannot be used for any other purposes. Too much attention has not been paid to issues related to scale. During the INW the descriptive boundaries and the map should be given to the various ecoregion coordinators for their comments and concurrence. If think the limitations of the map needs to be explicitly stated so that people do not get carried away.

The best email ID for Ajith <kuma666@eth.net> he is apparently down with a bad back.

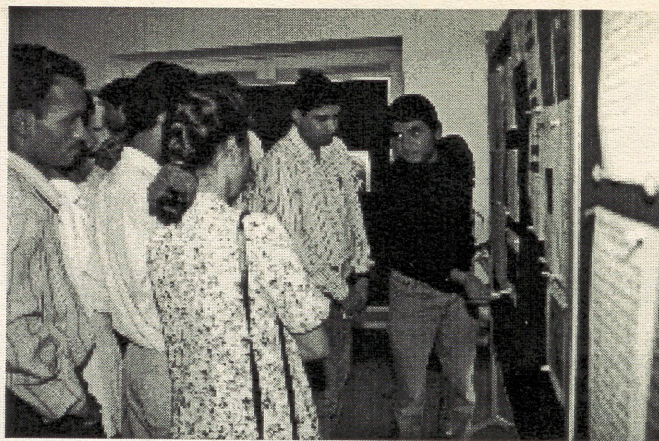
I am not making any efforts to plan a trip for attending the INW on 24th. This will actually help me a great deal with my family!!

The final printout of the map will be taken out tomorrow and by then I need confirmation on what I have stated above also on the type and format of the output.

Best, ravi



Students got the opportunity to talk to the scientists who were present, including Professor Yashpal.



Academic members of IUCAA presented exciting new results in Physics and Astrophysics to visitors as part of the Open Day activities.

One representative from each school competed for the Drawing prize. They were invited to draw in pencil either how they imagined *A View from a Spaceship* would be, or their impressions of *Violent phenomena in the Universe*. First and second prizes were awarded to Abhishek Kulkarni (Sardar Dastur Boys High School) and Shahid Shaikh (S.V. Union High School). Another student from each school participated in the Science Essay competition. They had to write, either in English or in Marathi, about either the Scientist who inspires them most, or on whether Science should remain a compulsory subject in High School. They were also given the choice to fantasise about what it would be like if Gravity did not exist, or if Dinosaurs were alive today.

Seventy schools participated in the first round of the Science Quiz Contest, each school being represented by a team of four students. In the first round, they were given 40 minutes to attempt to answer 25 multiple-choice questions in physics, astronomy, mathematics, chemistry and biology. Of these, six teams were selected for the final stage, which was conducted in a full Chandrasekhar Auditorium. The finals were convincingly won by Bal Shikshan Mandir, who also won the N.C. Rana Memorial Trophy for the best overall performance in all the events of the day. Prizes were also awarded to Vidya Bhavan and St. Vincent High School for ranking second and third respectively. J.V. Narlikar gave away the prizes.



*Wý pñóý 'pác ádqA' Ó 'pñt áááááá á áááááá áááááá'



@Ý 'áááááá' © áááááá áááááá áááááá áááááá áááááá áááááá

Over two thousand visitors attended the Open Day activities at IUCAA in four hours.

Visitors took an active interest in the Internet and the Worldwide Web, and were treated to stunning images from our Astronomical Data Centre.

ENCL
2000

ashish kothari

From: vncs <vncs@nagpur.dot.net.in>
To: ashish kothari <ashish@giasdl01.vsnl.net.in>
Subject: Re: VNHS?
Date: Thursday, June 15, 2000 9:08 AM

Dear Ashish,

I must give you correct information. I have not seen Mr. Kirpekar involved in any activities where his name was proposed by JFM-Network. He is the President of JFM-Network (Maharashtra), but I have not experienced his involvement at any level, except at the beginning some 3-4 years back. He is a gentleman and retired Forest Officer with good track record and therefore I have regards for him. I have not seen him involved in any joint or individual actions in JFM process, except with VNHS as he is the President of this organisation.

Two retired forest officers Mr. Kirpekar (Retd.CCF) and Mr. Ram Indurkar (Ret.CCF-Wildlife) are associated with VNHS. VNHS is doing work as others do in the area. I have no idea about them except their involvement in documentation process of avifauna in Tadoba under Maharashtra Forestry Project, because VNCS was one of the partners of Maharashtra Forestry Project and done work on "Insects of Pench". They may be doing more work, but I have no idea about the work of VNHS more than this. Please treat this confidential.

Regarding their capacity, contacts, expertise to do the work of ecoregional BSAP, my opinion is "No Comments".

Thanks,
Dilip

-----Original Message-----

From: ashish kothari <ashish@giasdl01.vsnl.net.in>
To: Dilip Gode <vncs@nagpur.dot.net.in>
Date: 13 June 2000 19:01
Subject: Re: VNHS?

>Dear Dilip,

>

>How active is the VNHS these days? Is Mr. Kirpekar still involved? There is

>a suggestion that they be asked to coordinate the ecoregional Biodiversity

>Action Plan process for the central forest belt (which will include the

>entire stretch of forests/tribal lands in Maharashtra, M.P., and parts of

>AP/Orissa, Chattisgarh in Bihar, etc). Do you think they would be able to

>do this, in terms of capacity, contacts, and expertise?

>

>I would appreciate your not mentioning this to anyone as of now...thanks,

>

>Ashish

>

>Kalpavriksh

>Apartment 5, Shree Dutta Krupa

>908 Deccan Gymkhana

>Pune 411 004, India

PS/SR/RIC?
would be good
for our flora-fauna
studies

give back to
it

16 Cerros del Lago
Ctra. de Istan km.8
29611 Istan
Malaga
Spain

08 April 2000

Change of
add.

Kalpavriksh
Ashish Kothari
C 17/A Munirka
New Delhi 110067
India

Dear Mr/s Kothari,

I am writing to you to request more information about your organisation. I am very interested in the work you are doing and would be grateful if you could send me some details of the projects on which you are currently working and/or have planned for the near future.

I am a recent graduate from the University of Southampton in the United Kingdom, where I obtained a BSc (Hons) in Marine Sciences with French, and also a Maitrise de Sciences de l'Environnement: Option Oceanologie from the Universite Bordeaux I.

I have lived in Spain for over 15 years and am bilingual in Spanish/English and speak fluent French. I have also taught privately for several years and am particularly interested in the community awareness side of your work since I feel my experience in education would stand me in good stead.

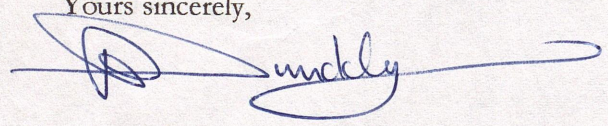
I recently spent 4 months in Indonesia as a volunteer and worked on a survey looking at the relationship between the benthic flora and butterfly fish species, since butterfly fish have been shown to be a good indicator of reef health. I also worked with the local Bajo community on the setting up and fishing of 'rompings' (a type of Fish Aggregating Device). I believe this experience may be of use to your organisation as would the fact that I am a qualified scuba diver.

ABN/
Lakshmi
Goa?

I am planning to travel to India in the near future and am interested in any work or voluntary work I might be able to do to aid your organisation.

I would be more than happy to forward you my C.V. and references or any other information you may require.

Thank you for your time.
Yours sincerely,



Joanna Dunckley BSc (Hons), MSE

Tel: (+34) 952827603
Mob: (+34) 626903785
e-mail: joey_d7@hotmail.com

EWG
Kore
(map)

ashish kothari

From: Dr. Ravi Chellam <ravic@wii.gov.in>
To: ashish kothari <ashish@giasdl01.vsnl.net.in>
Cc: Bansuri Taneja <swansong@giasdl01.vsnl.net.in>, ~~BCIL~~ <bcil@giasdl01.vsnl.net.in>
Subject: Eco-region map
Date: Monday, June 12, 2000 10:06 AM

Dear Ashish, The map is ready. I have printouts in colour as well as patterns. These printouts are on paper as well as OHP sheets. I will be leaving them behind in Delhi on 17th.

The following clarifications need to be kept in mind while dealing with the map. The map is indicative only and it is not accurate enough for anyother detailed work. The boundaries largely follow the ones used in the WII's biogeography report. For a few regions I have used the topographical features to assign the boundaries. Shivaliks is in three discontinuous bits, two of which are very small and this needs to be highlighted while making the presentation. The two coasts are more than merely the coastline as we have large delta and mangrove habitats especially in the east. Finer resolution of the boundaries for the Eastern Ghats and Central Forest belt is needed.

I leave Doon on 17th and get back on 9th. I am in Chennai from 19th till 7th and can be reached at 044 4982454 & 4984090 <guruguha@eth.net>

Best, Ravi

4.2. Tests of stability

We conducted a series of tests to determine how the program responds to deviations from the idealized conditions assumed in the previous section, to gain some insight into problems encountered when dealing with real images rather than simulated ones.

4.2.1. Effect of changing S/N ratio

The S/N ratio improves with increase in exposure time. We examined the image of the same simulated galaxy using pixel counts for a bright galaxy and sky background corresponding to exposure times ranging from about 5 seconds to 8 minutes on a 1 m class telescope. The exposure times (and hence the pixel counts) varied by a factor of 96 and S/N ratio by a factor of about 10 ($\simeq \sqrt{96}$). The background counts used were estimated from observations made on a 1m class telescope in the Cousins R filter. We expected that as S/N got better, the fit would improve and parameter recovery would get more accurate. We found that the accuracy of the extracted parameter values is strongly dependent on the exposure time only for short exposures of < 30 seconds. The results for different exposure times are shown in Table 1. Peak counts of less than one thousand for galaxies are not very useful for the purpose of bulge disk decomposition.

It is seen that χ^2_{ν} increases slowly but monotonically with exposure time. This is an artifact of the way sky background is used in the program creating the input galaxies. When simulating galaxies, background is added, Poisson noise is calculated using the intensity of both background and galaxy, and the background is subtracted out. Then, when the fitting program runs, it estimates the noise at each pixel as the square root of the number of counts at that pixel, but the actual noise is the square root of the sum of the number of counts and the background. This causes the points with low counts to be weighted more than they should be (resulting in higher χ^2_{ν}), but the difference is small.

4.2.2. Effect of erroneous measurement of PSF

With real data it is often impossible, even if a large number of stars are used, to measure the PSF to an accuracy of better than about 5%. One reason for this is the variation of the PSF in different regions of

over

EWG
Central
India
Ecoregion

ashish kothari

From: Dr. Ravi Chellam <ravic@wii.gov.in>
To: ashish kothari <ashish@giasdl01.vsnl.net.in>
Cc: Bansuri Taneja <swansong@giasdl01.vsnl.net.in>; BCIL <bcil@giasdl01.vsnl.net.in>
Subject: Re: central India ecoregion
Date: Tuesday, May 30, 2000 6:43 AM

Dear Ashish, Apologies for the delay on this.
I am quoting from the WII biogeographical classification and feel that Zone 6 will have the most relevance.

ZONE 6 Deccan Peninsula: By far the largest zone covering all the peninsula with the exception of the moist mountainous W. Ghats. This zone has five provinces 6A South Deccan, 6B Central Plateau, 6C Eastern Highlands, 6D Chhota-Nagpur plateau and 6E Central Highlands.

6A includes areas south of river Krishna (thorn forest communities of S India) and probably can be excluded. Tamil Nadu plains, southern E Ghats and Karnataka plateau. 6B is the flatter dry plateau of Maharashtra and northern Andhra. Maharashtra and Telengana.

6C hill ranges of south Orissa and north east ANDhra, between Mahanadi and Godavari and westwards to include the moist valleys and hill systems of Chatisgarh and Dandakaranya in MP. Northern E Ghats and Chatisgarh and Dandakaranya.

6D Falls between Mahanadi to the south and Son river to the north. Chhota Nagpur plateau and Garhjat hills.

6E Satpura and Maikal hills and Vindhya and Bagelkhand hills.

I feel that the Central Indian ecoregion should at best be restricted to include 6B, 6C, 6D and 6E. 6B may also be excluded as it is the drier plateau. Hope this helps.
Best, Ravi

Will get covered in E. Ghats?
Is Bastar, etc. covered?

ashish kothari wrote:

- > Dear Ravi and BMS,
- >
- > I have yet to hear from either of you regarding the long-pending decision
- > on the central Indian ecoregion. Ravi, you were to explain the
- > biogeographic implications, and BMS, you were to check with Mr. Savarkar.
- > PLEASE TREAT THIS AS MOST URGENT, AS A DECISION ON THIS NEEDS TO BE TAKEN
- > IMMEDIATELY. I am also marking this to Satheesh, as he had suggested the
- > name of MANAGE to coordinate the central forest belt EWG, but this is on
- > hold till we sort this out.
- >
- > Ashish
- >
- > Kalpavriksh
- > Apartment 5, Shree Dutta Krupa
- > 908 Deccan Gymkhana
- > Pune 411 004, India
- >
- > Ph. and fax: ++91-20-565 4239
- > Email: ashish@nda.vsnl.net.in

kalpavriksh

From: ashish kothari <ashish@giasdl01.vsnl.net.in>
To: ENVIS Centre <aucasmb@md4.vsnl.net.in>
Cc: M.V.M. Wafar <wafar@darya.nio.org>; Sujatha NBSAP <kvriksh@vsnl.com>; Bansuri Taneja <swansong@giasdl01.vsnl.net.in>; BCIL <bcil@giasdl01.vsnl.net.in>
Subject: Re: mail from L. Kannan, CAS in Marine Biology
Date: Monday, June 05, 2000 12:55 PM

Dear Dr. Kannan,

Thank you for your positive response. We will be in touch with you regarding further details. I look forward to seeing you on June 23/24th.

Ashish

Kalpavriksh
Apartment 5, Shree Dutta Krupa
908 Deccan Gymkhana
Pune 411 004, India

Ph. and fax: ++91-20-565 4239
Email: ashish@nda.vsnl.net.in

From: ENVIS Centre <aucasmb@md4.vsnl.net.in>
To: ashish@giasdl01.vsnl.net.in
Subject: mail from L. Kannan, CAS in Marine Biology
Date: Saturday, June 03, 2000 8:42 PM

2.6.2000

To

Dr. Ashish Kothari

Co-ordinator (TPCG)

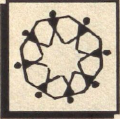
NBSAP

Apt. 5, Shree Dutta Krupa

908 Deccan Gymkhana

Pune - 411 004.

E-mail: ashish@nda.vsnl.net.in / kvriksh@vsnl.com.



Island Alert!

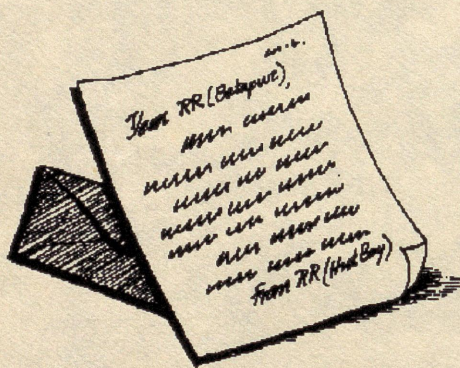
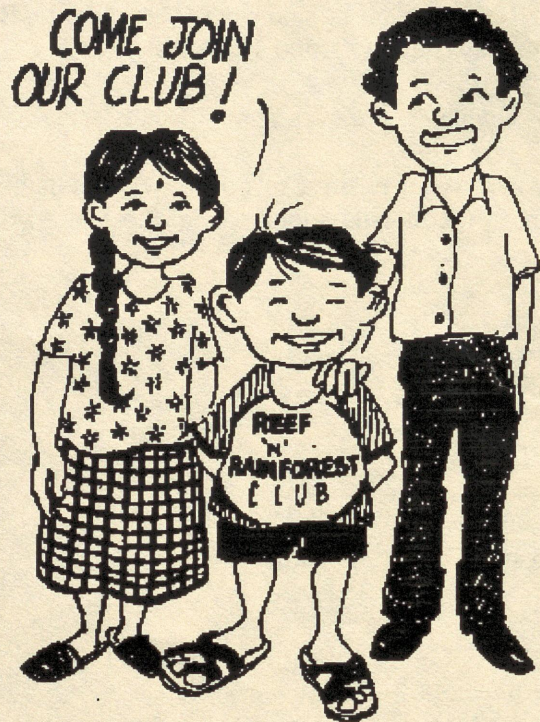
Action you can take to protect the Islands

Lets Get Together!

Understanding and caring for our environment can be best done if we form a group and work together. This group can then learn new things, undertake activities, and most of all - have *fun* together! It is easy to form a group or a club especially if you are a teacher. Approach the school principal and get permission to start a club. Announce it in the assembly or put up a notice asking interested students to contact you. The club could be part of "work experience" (formerly called SUPW). Once you have students enrolled in the club, you could meet regularly (maybe every Saturday) for one or two hours.

Who Can Start a Club?

Anyone with a lot of enthusiasm and some dedication. A teacher, a student, a parent, anyone at all. If a club is to be started in a school, it would be easier if a teacher was in charge of it. The teacher can have any background. It would help perhaps if she/he had a knowledge of geography or biology. If two or more people joined and started the club it would be better still - after all two heads are better than one!



The Reef 'n Rainforest Club! (RR Club)

Yes! That is what we can call our club - the RR Club ("our" Club!!). Imagine if several schools all started RR Clubs, we would soon have a good network of them all over the islands. Information and material could be exchanged. And students could even visit another club on another island.

The name Reef 'n Rainforest has been chosen because coral reefs and tropical rainforests are our most precious assets. Also the words sound nice together, don't they?!

What Can Be Done At The RR Club?

Lots of things! First of all, we have such a variety of natural habitats to visit and see, unlike people on the mainland. In most other places, people can only see coral reefs, mangroves, and rainforests in photographs and films. Very, very few of them can even dream of making a trip to see these places in real life. We are so lucky to have around us such a diversity and richness of nature's wealth.

As part of the RR Club, we can also try and protect our timeless treasures. Action can be taken through the club to protect a coral reef from damage, tell people to save water, or run a campaign to reduce the garbage in your area. Working together is much easier and more effective than working alone.

ashish kothari

From: artrans <artrans@jp1.dot.net.in>
To: ashish@giasdl01.vsnl.net.in
Subject: NBSAP Meeting
Date: Tuesday, June 06, 2000 3:22 PM

Dr. Ishwar Prakash
Phd, DSc, FNA

Zoological Survey of India
107, Kamla Nehru Nagar
Jodhpur – 342 009
Phone : (0291) 751152 (O)
512654 (R)
Fax : (0291) 752465

Date : June 6, 2000

To,
Dr. Ashish Kothari
B-25, Defence Colony
New Delhi – 110 024

Dear Dr. Kothari,
I have received the formal invitation from Shri R.H. Khwaja, Jt. Secretary, MOEF to participate in the NBSAP meeting at Delhi on 23/24 June. I shall be attending the meeting.
Kindly inform whether some stay arrangements are being made for the participants. Which is the venue of the meeting?
Hope travel expenditure etc. will be reimbursed.

Yours sincerely,

Ishwar Prakash

54. Horizon problem and inflation (with T. R. Seshadri), *Jour. Astrophys. Astron.* (1987), **8**, 275.

1988

55. Does inflation solve the horizon problem? (with T.R. Seshadri), *Class. Quan. Grav.*, (1988), **5**, 221.
56. The Schwarzschild solution: some conceptual difficulties, (with J.V. Narlikar), *Found. Phys.*, (1988), **18**, 659.
57. Principle of general covariance and quantum theory, *Mod. Phys. Letts.* (1988), **A3**, 367.
58. Acceptable density perturbations from inflation due to quantum gravitational damping, *Phys. Rev. Letts.*, 1988, **60**, 2229.
59. An attempt to explain the smallness of the cosmological constant (with T.P. Singh), *Jour. Mod. Phys.* (1988) **A3**, 1593.
60. Quantum uncertainty in the horizon size in an inflationary universe, (with T.R. Seshadri), *Jour. Mod. Phys.* (1988) **3**, 2113.
61. The focusing equations, caustics and the condition for multiple imaging by thick gravitational lenses (with K. Subramanian), *Mon. Not. R.A.S.*, (1988), **233**, 265.
62. Response of accelerated detectors in coherent states and the semi-classical limit, (with T.P. Singh), *Phys. Rev. D.*, (1988), **38**, 2457.
63. On Feynman's formula for the electromagnetic field of an arbitrarily moving charge (with A.R. Janah and T.P. Singh), *Am. Jour. Phys.* **56**, **1036** (1988).

1989

64. Semi-classical approximations for gravity and the issue of backreaction, *Class. Quan. Grav.* (1989) **6**, 533.
65. Making inflation work : Damping of density perturbations due to Planck energy cut-off. (with T.R. Seshdari and T.P. Singh), *Phys. Rev. D.*(1989) **39**, 2100.
66. Phase volume occupied by a test particle around an incipient blackhole, *Phys. Letts. A.* (1989) **136**, 203.
67. Decoherence in the density matrix describing the quantum 3-geometries and the emergence of classical spacetime; *Phys. Rev. D* **39**, 2924, (1989).
68. **Review Article:** Some fundamental aspects of semiclassical and quantum gravity; *Jour. Mod. Phys.* **A4**, 4735, (1989).
69. A note on the volume occupied in phase space by a system of gravitationally interacting particles, *Astrophys. Jour.*, **344**, 848 (1989).
70. Conserved quantities from piecewise Killing vectors (with T. Dray); *Gen. Rel. Grav.*, **21**, 741 (1989).

Could
copy

ashish kothari

From: Sarat Babu <sarat@menf.delhi.nic.in>
To: ashish kothari <ashish@giasdl01.vsnl.net.in>
Subject: Re: NBSAP: EPTRI, Hyderabad
Date: Thursday, July 27, 2000 6:17 PM

Dear Ashish

I have already sent a copy to EPTRI. I also gave a copy to BCIL. I tried to fax a copy to you. But it is very difficult to get your FAX line.

Letters to Kartekeya, Dr Agarwal, Dilip Ghode, Prof Amalesh Choudary are being issued from NPD. We have finalised the MOU and tomorrow letters will be issued to all confirmed State nodal agencies, TWG coordinators, Sub-state site nodal agencies and Eco-region coordinators. Looking at the list of group suggested by Prof Madhysta I am afraid that how they are going to accomplish the task. They should come with a plan how they are going to handle the exercise. From the background papers and Workshop you have clearly explained them what is expected from them. May be I am a bit pessimistic at this stage. We have already answered two parliament questions on NBSAP during this ensuing session. I dont know how many I have to answer in future.

Regarding TA & DA for participation of Government Officials in the TWG meetings, due to meagre funds available, the respective organisations should bear the expenditure. The coordinator may mention this while sending the invitation letters.

I personally feel that the coordinators should first conceive the modus operandi first and later convene the meetinh to firm up the procedure. Without this exercise convening a meeting may not serve any purpose except drain the limited resources.

Any news from Prof J.S Singh and Prof Mohan Ram. What about Polocies and Laws.

Regards

Sarat

ashish kothari wrote:

- > Dear Vibha,
- >
- > Have you then called Sarat and asked him to send you a copy, or directly to
- > EPTRI? Sarat, if you read this, please send both BCIL and me a copy of this
- > and any other letter from state govt. that you may have received recently.
- > Thanks,
- >
- > Ashish
- > Kalpavriksh
- > Apartment 5, Shree Dutta Krupa
- > 908 Deccan Gymkhana
- > Pune 411 004, India
- >
- > Ph. and fax: ++91-20-565 4239

- The degree of interference of the compounds studied depended on their functional groups and their chemical structure.
- Saturated compounds and carbohydrates exert little or no chlorine demand and do not appear to interfere with the chlorination process.
- Organic compounds with unsaturated bonds may exert an immediate chlorine demand, depending on their functional groups. In some cases, the resulting compounds may titrate as chlorine residual and yet may possess little or no disinfection potential.
- Compounds with polycyclic rings containing hydroxyl groups and compounds containing sulfur groups react readily with chlorine to form compounds which have little or no bactericidal potential, but which still titrate as chlorine residual.
- To achieve low bacterial counts in the presence of interfering organic compounds, additional chlorine and longer contact times will be required.

While these conclusions must be considered preliminary until additional work is performed to substantiate the reported observations, they nevertheless provide insight into the chlorination process. From the results of this work, it is easy to see why the efficiency of chlorination at plants with the same effluent characteristics can be quite different. Clearly, it is not the value of the BOD or COD that is significant, but the nature of the compounds that make up the measured values. Thus the nature of the treatment process used in any plant will also have an effect on the chlorination process.

Characteristics of the microorganisms Another important variable in the chlorination process is the age of the microorganisms. For example, in the study by Sung that has just been described [37], it was found that there was a

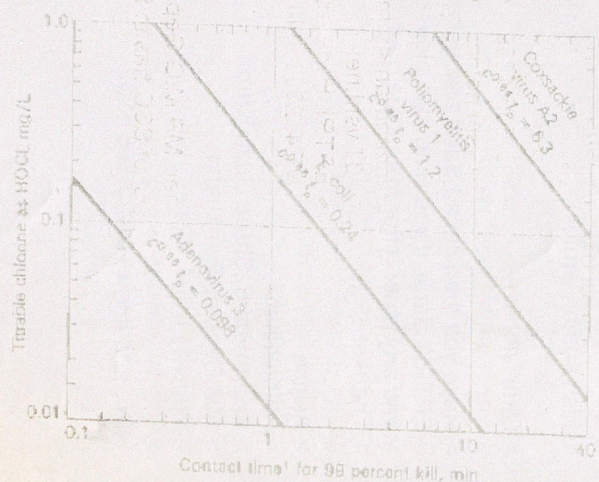


Figure 7-19 Concentration of chlorine as HOCl required for 99 percent kill of *E. coli* and three enteric viruses at 0 to 6°C [2]. Note: mg/L = g/m³.

noticeable difference in the resistance of bacterial cultures to chlorine. For a young bacterial culture (1 d old or less) with a chlorine dosage of 2 mg/L, only 1 min was needed to reach a low bacterial number. When the bacterial culture was 10 d old or more, approximately 30 min was required to achieve a comparable reduction for the same applied chlorine dosage. It is likely that the resistance offered by the polysaccharide sheath, which the microorganisms develop as they age, accounts for this observation. In the activated-sludge treatment process, the operating mean cell residence time, which to some extent is related to the age of the bacterial cells in the system, will thus affect the performance of the chlorination process (see Chap. 9).

In view of the renewed interest in wastewater reclamation, the viricidal efficiency of the chlorination process is of great concern. Unfortunately, definitive data on this subject are not available at present. Some representative data on the effectiveness of chlorine in killing *E. coli* and three enteric viruses are reported in Fig. 7-18. From the evidence available on the viricidal effectiveness of the chlorination process, it appears that chlorination beyond the breakpoint to obtain free chlorine will be required to kill many of the viruses of concern. Where breakpoint chlorination is used, it will be necessary to dechlorinate the treated wastewater before reuse to reduce any residual toxicity that may remain after chlorination. Additional details may be found in Ref. 2.

7-6 DECHLORINATION

Dechlorination is the practice of removing the total combined chlorine residual that exists after chlorination. Effluent requirements for the removal of the total combined chlorine residual, with the objective of reducing the toxic effects of chlorinated effluents on receiving-stream biota (see Ref. 33), are a relatively recent criterion imposed by regulatory agencies in certain parts of the United States (e.g., the San Francisco Bay area). Where effluent requirements are applicable, or where dechlorination is used as a polishing step following the breakpoint chlorination process for the removal of ammonia nitrogen, sulfur dioxide is a leading candidate for dechlorination. Activated carbon has also been used. Both these means are discussed in this section. Other chemicals that have been used are sodium sulfite (Na_2SO_3) and sodium metabisulfite ($\text{Na}_2\text{S}_2\text{O}_5$).

Toxicity of Chlorine Residuals

Chlorination is one of the most commonly used methods for the destruction of pathogenic and other harmful organisms that may endanger human health. As noted in the previous discussion, however, certain organic constituents in wastewater interfere with the chlorination process. Many of these organic compounds may react with the chlorine to form toxic compounds that can have long-term

> Email: ashish@nda.vsnl.net.in

>

> -----

>> From: bcil <bcil@giadl01.vsnl.net.in>
>> To: ashish kothari <ashish@giadl01.vsnl.net.in>
>> Cc: Bansuri Taneja <swansong@giadl01.vsnl.net.in>
>> Subject: Re: NBSAP: EPTRI, Hyderabad
>> Date: Wednesday, July 26, 2000 4:36 PM

>>

>> Dear Ashish,

>>

>> BCIL does not have a copy of the letter from Govt. of A.P. This letter
>> was

>> received by MoEF only.

>>

>> All the letters received by us regarding the state nodal agencies have
>> already been sent to you.

>>

>> Regards,

>>

>> Vibha

>>

>> ----- Original Message -----

>> From: ashish kothari <ashish@giadl01.vsnl.net.in>
>> To: BCIL <bcil@giadl01.vsnl.net.in>; G.V. Sarat Babu
>> <sarat@menf.dehi.nic.in>
>> Sent: Monday, July 24, 2000 5:10 PM
>> Subject: Fw: NBSAP: EPTRI, Hyderabad

>>

>>

>>> Dear Sarat, Vibha,

>>>

>>> Please see the urgent request below. Could you also send me this letter
>>> (and any others over the last few weeks), since we do not have it for

>>> our

>>> records? Thanks,

>>>

>>> Ashish

>>> Kalpavriksh

>>> Apartment 5, Shree Dutta Krupa

>>> 908 Deccan Gymkhana

>>> Pune 411 004, India

>>>

>>> Ph. and fax: ++91-20-565 4239

>>> Email: ashish@nda.vsnl.net.in

>>>

>>> -----

>>> From: Uma Ramachandran <ruma@eptri.com>

>>> To: ashish@giadl01.vsnl.net.in

>>> Subject: NBSAP: EPTRI, Hyderabad

>>> Date: Monday, July 24, 2000 1:11 PM

>>>

>>> Dear Ashish

>>>

>>> Our Commissioner, MR.M.G.Gopal had adiscussion with our Principal

>>> Secretary. The list of SSC has to be represented to the Chief Secretary

>>> (CS), Govt. of AP.

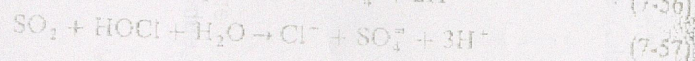
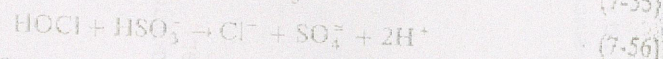
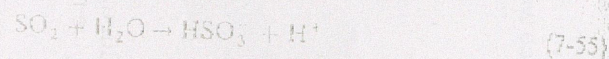
adverse effects on the beneficial uses of the waters to which they are discharged. The controversy concerning the possible formation of carcinogenic by-products is also unresolved (as of 1977).

In 1971, the Michigan Department of Natural Resources [22] conducted studies at four municipal wastewater-treatment plants in Michigan to determine the effects of discharging chlorinated wastewater to the environment and found that chlorine residuals were toxic to both minnows and trout at distances up to 0.8 mile downstream from the effluent-discharge points. Concurrently, Esvelt et al. [9] reported that chlorine increased the toxicity of municipal wastewaters that had undergone either primary activated-sludge treatment or chemical-precipitation treatment. To minimize the effects of these potentially toxic chlorine residuals on the environment, it has been found necessary to dechlorinate wastewater treated with chlorine [33].

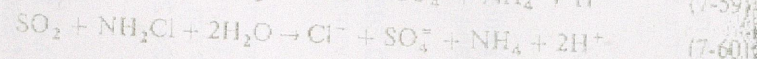
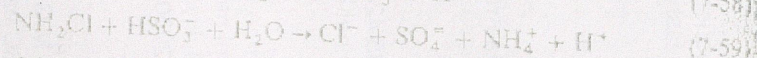
Analysis of Dechlorination

Sulfur dioxide Sulfur dioxide gas successively removes free chlorine, monochloramine, dichloramine, nitrogen trichloride, and poly-*n*-chlor compounds. When sulfur dioxide is added to wastewater, the following reactions occur [25]:

Reactions with chlorine:



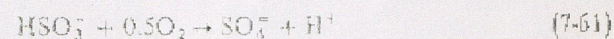
Reaction with chloramines:



For the overall reaction between sulfur dioxide and chlorine (Eq. 7-57), the stoichiometric weight ratio of sulfur dioxide to chlorine is 0.9:1. In practice, it has been found that about 1.0 ppm of sulfur dioxide will be required for the dechlorination of 1.0 ppm of chlorine residue (expressed as Cl_2). Because the reactions of sulfur dioxide with chlorine and chloramines are nearly instantaneous, contact time is not usually a factor and contact chambers are not used, but rapid and positive mixing at the point of application is an absolute requirement.

The ratio of free chlorine to the total combined chlorine residual before dechlorination determines whether the dechlorination process is partial or proceeds to completion. A ratio of less than 85 percent normally indicates that significant organic nitrogen is present and interferes with the free residual chlorine process.

In most situations, sulfur dioxide dechlorination is a very reliable unit process in wastewater treatment, provided that the precision of the combined chlorine residual monitoring service is adequate. Excess sulfur dioxide dosages should be avoided, not only because of the chemical wastage, but also because of the oxygen demand exerted by the excess sulfur dioxide. The relatively slow reaction between excess sulfur dioxide and dissolved oxygen is given by the following expression [25]:



The result of this reaction is a reduction in the dissolved oxygen contained in the wastewater, a corresponding increase in the measured BOD and COD, and a possible drop in the pH. All these effects can be eliminated by proper control of the dechlorination system.

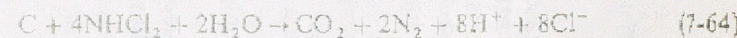
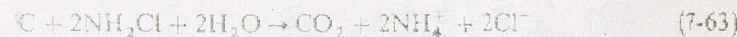
Sulfur dioxide dechlorination systems are similar to chlorination systems because sulfur dioxide equipment is interchangeable with chlorination equipment. The components of these systems are discussed in Chap. 8. The key control parameters of this process are (1) proper dosage based on precise (amperometric) monitoring of the combined chlorine residual and (2) adequate mixing at the point of application of sulfur dioxide.

Activated carbon Carbon adsorption for dechlorination provides complete removal of both combined and free residual chlorine [17, 26]. When activated carbon is used for dechlorination, the following reactions occur [26]:

Reactions with chlorine:



Reactions with chloramines:



Granular activated carbon is used in either a gravity or pressure filter bed. If carbon is to be used solely for dechlorination, it must be preceded by an activated-carbon process for the removal of other constituents susceptible to removal by activated carbon. In treatment plants where granular activated carbon is used to remove organics, either the same or separate beds can be used for dechlorination, and regeneration will be feasible.

Because granular carbon in column applications has proved to be very effective and reliable, activated carbon should be considered where dechlorination is required. However, this method is quite expensive. It is expected that the primary application of activated carbon for dechlorination will be in situations where high levels of organic removal are also required.

International

ashish kothari

From: KV-Delhi <swansong@giasdl01.vsnl.net.in>
To: capo@socioambiental.org; bfsdias@mma.gov.br; ashish kothari <ashish@giasdl01.vsnl.net.in>
Subject: attn: Mr. Braulio Dias, Mr. Joao Paulo Capobianco, regarding NBSAP
Date: Friday, July 28, 2000 3:14 PM

Dear Mr. Braulio Dias, Mr. Joao Paulo Capobianco, India is in the process of preparing her National Biodiversity Strategy and Action Plan, an exercise you must be familiar with. In a novel arrangement, the Ministry of Environment and Forests of the Government of India has entrusted the technical coordination of the preparation of the NBSAP to an environmental NGO, Kalpavriksh. Mr. Ashish Kothari on Kalpavriksh's behalf is coordinating a Technical and Policy Core Group (TPCG) to plan and execute the process, while Biotech. Consortium India Ltd., a consultancy firm, is providing the administrative back-up. The TPCG consists of 14 persons from a wide range of professional backgrounds, and includes scientists, social activists, resource managers, tribals, and others. This group meets every month to plan, monitor, and implement the process.

The Indian NBSAP envisages an extremely widespread consultative process, bringing into its fold several thousand groups and individuals, and holding planning exercises at various levels from local to state to national. It pays as much attention to the process as to the output, stressing that if participation is wide and adequate, implementation of the final action plans will be that much more effective.

While seeking inputs and lessons from other country experiences, we were apprised that the preparation of Brazil's NBSAP also envisaged a variety of inputs and consultation mechanisms, and that the plan had been prepared at the level of individual biomes. We would very much like to know more of the Brazilian experience, and of the lessons that arise therefrom. However, we are somewhat constrained by the documentation available on the web being in Portuguese. We would be grateful if you could direct us to any documentation available in English, or if you or any others could help us with specific queries that we may have. We look forward to hearing from you,
Regards, Bansuri Taneja Kalpavriksh. Member, Technical and Policy Core Group, Indian National Biodiversity Strategy and Action Plan

1 MAR 1994

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Ref. No. : 117/934/1400

Date : February 23, 1994

BAJAJ AUTO LTD.
Akurdi,
PUNE - 411 034

Kind attn. : Mr. Arvind Gupta.
D.G.M.-Facility Engineering.

Dear Sirs,

We take the pleasure of introducing ourselves as manufacturers of Quartz Infrared Heating Systems. These systems are used for a variety of applications as indicated in our catalog enclosed herewith for your reference. A specific application is for paint baking and powder coat curing.

Our heating systems are custom built as per user requirements. They can be used for complete paint baking of scooter chassis. We would suggest you to consider our infrared heating system as "BOOSTER" prior to your existing convection baking oven.

Installation of booster will give you the following advantages :

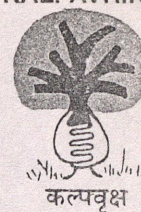
- a. Infrared heats the painted object at an accelerated rate during ramp-up cycle, thus eliminating the risk of dust accumulation on the painted surface.
- b. Since infrared heating doesn't require a medium like air inside the booster zone, it means less likelihood that dust particles from floors & conveyors to deposit on the freshly painted vehicle.
- c. Infrared heating produces a tack-free outer surface that can be set-up inside the convection baking oven.
- d. Overall length of the convection oven can be reduced saving valuable floor space.
- e. IR ovens are cleaner and require less maintenance than convection ovens.

In conclusion, an IR booster leads to higher gloss, less re-work, and greater energy efficiency of the complete paint baking system.

Mr RAS
Mr RRB
H

EWG General 2.1.11 Corr / Invitation letter to state nodal agencies / Ver. 1 / 15-4-2000

KALPAVRIKSH



24/5/2000

Dear

The Ministry of Environment and Forests (MoEF), Government of India, has initiated a project to prepare India's National Biodiversity Strategy and Action Plan (NBSAP). Such a Plan has been a long-felt need in the context of the rapid loss of biological diversity in India, and is also in keeping with India's obligations under the UN Convention on Biological Diversity. In 1999, the MoEF came out with a Macro-Strategy on biodiversity; the NBSAP, which is supported by the Global Environment Facility (GEF) through UNDP, will attempt to flesh out this macro-strategy in the form of very detailed action points and time-bound programmes.

Environmental
Action Group

The aim of the project is to evolve a plan relevant to the country as a whole, tackling the range of biodiversity concerns and the different levels at which biodiversity is impacted. To this end, it is envisaged that action plans will be prepared for 14 themes relating to biodiversity at the national level, for the 31 states and union territories, for 9 inter-state ecoregions, and for about 20 sub-state, local sites. All kinds of biodiversity will be focused upon: wild plants and animals, domesticated livestock and crops, micro-organisms, and ecosystems. In all this, the greatest stress will be on maximum participation of women and men from all sectors: local communities, scientific organisations, NGOs, government agencies of all kinds, political leaders, artists, and others. There will be special focus on issues of gender and equity, ethical concerns, livelihoods linked to biodiversity, threatened species and ecosystems, and community-based conservation.

A layered organizational structure has also been instituted for drawing up the NBSAP. The National Project Directorate (NPD) is situated at the MoEF. This NPD along with the Steering Committee provides guidance and assistance for the process. A Technical and Policy Core Group (TPCG), consisting of experts from various fields and different parts of India, from both government and outside, is the main planning and executing body of the NBSAP. An administrative coordinating agency (BCIL, New Delhi), is overseeing the logistic aspects. Themes will be handled by appropriate Working Groups, and state or local level processes by appropriate nodal agencies and steering committees. These groupings will consist of a cross-section of sectors, interests and professions.

I have been asked to coordinate the TPCG, on behalf of Kalpavriksh. I am now writing to informally intimate you that the TPCG has recommended you to be the coordinator of a working group for the ecoregion of _____, in the context of the NBSAP. As a coordinator, you will be required to initiate and coordinate the preparation of the action plan for your ecoregion. In this, you will be guided by a Ecoregional Working Group (EWG), comprising of people from various sectors. We will suggest to you the composition of the EWG, though of course you will perhaps want to choose some of the members yourself.

We do hope that you will agree to take on this responsibility. You will soon receive a formal intimation of this from the MoEF. **Meanwhile, we would also like you to book the dates of June 23/24, to participate in the Inaugural National Workshop on this project, in New Delhi.** You will be intimated further details of this workshop very soon after we have received your concurrence.

We look forward to working with you on this exciting process. Thanking you, sincerely yours,

(Ashish Kothari)

Coordinator, Technical and Policy Core Group
National Biodiversity Strategy and Action Plan

Apt. 5, Shree Dutta Krupa, 908 Deccan Gymkhana, Pune 411 004, India.

Telefax: (0212) 354239 • Email: ashish@nda.vsnl.net.in

020-5654239

Email: kvriksh@vsnl.com.

(Delhi Address: c/o B-25, Defence-Colony, New Delhi 110 024)

EWG General 5.2.1 | Them Docs | EWG map | Ver I R.C. | June 2000

~~EWG General 5.27.1 + Them Doc / Rav Chellam's email on cent Forest Belt / 30.5.2000~~

EWG General 5-1 / Them Doc / Chellam's email on central Forest Belt / 30.5.2000
Chellam's email 30 May 2000

Item No. 9

To discuss further

I am quoting from the WII biogeographical classification and feel that Zone 6 will have the most relevance

ZONE 6 Deccan Peninsula: By far the largest zone covering all the peninsula with the exception of the moist mountainous W. Ghats. This zone has five provinces 6A South Deccan, 6B Central Plateau, 6C Eastern Highlands, 6D Chhota-Nagpur plateau and 6E Central Highlands.

6A includes areas south of river Krishna (thorn forest communities of S India) and probably can be excluded. Tamil Nadu plains, southern E Ghats and Karnataka plateau. 6B is the flatter dry plateau of Maharashtra and northern Andhra. Maharashtra and Telengana.

6C hill ranges of south Orissa and north east ANDhra, between Mahanadi and Godavari and westwards to include the moist valleys and hill systems of Chatisgarh and Dandakaranya in MP. Northern E Ghats and Chatisgarh and Dandakaranya.

6D Falls between Mahanadi to the south and Son river to the north. Chhota Nagpur plateau and Garhjat hills.

6E Satpura and Maikal hills and Vindhya and Bagelkhand hills.

I feel that the Central Indian ecoregion should at best be restricted to include 6B, 6C, 6D and 6E. 6B may also be excluded as it is the drier plateau.

LIST OF BSAP DRAFTS RECEIVED FROM ECOREGIONS (as on 22.8.02)

Ecoregion	Name of nodal agency/coordinator	Received 1 st draft, date	Commented on, by whom	Comments sent, date	Received 2 nd draft, date	Commented on, by whom	Comments sent, date	Sent/ endorsed by MoEF	Remarks (including Comments to be sent, and urgent follow up)
ARAVALLI	VD Sharma, Paryavan Prahari, Jaipur	Yes, Nov 7 th , 01	KK AK	Nov '01 22.12.2001	Yes	KK	10.4.02	Sent, endorsed	Summary of the BSAP translated in hindi and circulated to villagers
CENTRAL FOREST BELT	Dilip Gode, VNCS, Nagpur	Yes 10.4.02	----	-----	Yes, 6.5.02	AK	7.7.02		BMS to comment
EAST COAST	L. Kannan, Annamalai University, Parrangipettai	Yes, Actions chapter Yes, revised actions chapter, 8.3.02 Yes, full draft end March	AK, MVMW	29.12.2001 &11.1.02					MVMW to follow up
EASTERN GHATS	T. Pullaiah, Sri Krishna Devaraja University, Ananthpur	Yes, October, 2001	AK	Nov '01	Yes, early april				PVS to check on latest status
GANGETIC PLAINS	Jamal Khan, Wildlife Society of India	Yes, Nov 29 th 01	RC, KK	Yes					RC to follow up
NORTH EAST INDIA	R.S.Tripathi, NEHU, Shillong	Actions chapter recd. 22.12.01 Yes, full draft 26.6.02	AK	yes					PCB, Gam to sent comments
SHIWALIKS	H.S.Mehta, ZSI, Solan	Yes, March 02	VS	Yes, 28.5.02					VS to check on the latest status

is a part to write to Kannan to make a request for additional funds.

Having trouble to get in touch with him. Ask MoEF to write letter to him

Slow progress due to contributors not giving in info. RC is coord. to send for peer review

Under produced the revised version from coordinator who said he had contacted Neelam Pawans inputs

EWG General 8.1.25/Log/Staus Chart/ Ver 25, KS, 22.8.02

WEST COAST	M.N.Madhyastha, Mangalore University, Mangalore	Yes, Nov 28 th 01	KK MVMW	Dec 20 th 01 17.1.02	Yes	MVMW	12.3.02		MVWM to Follow up
WESTERN GHATS	Ranjit Daniels, Chennai Snake Park, Chennai	Yes	AK	Sept/Oct '01	Yes	DS	12.1.02		Final version of the Draft ready? DS to follow up
WEST HIMALAYAS	S.P.Singh, Kumaon University, Nainital	Action points: 1 st set 2 nd set Full SAP chapter 25.2.02 Full draft received Mid- July 02	AK AK	Jan 2002 29.1.02					VS to sent comments

*Info got from
Gyesthat
coordinator
wanted to go to
Kashmir*

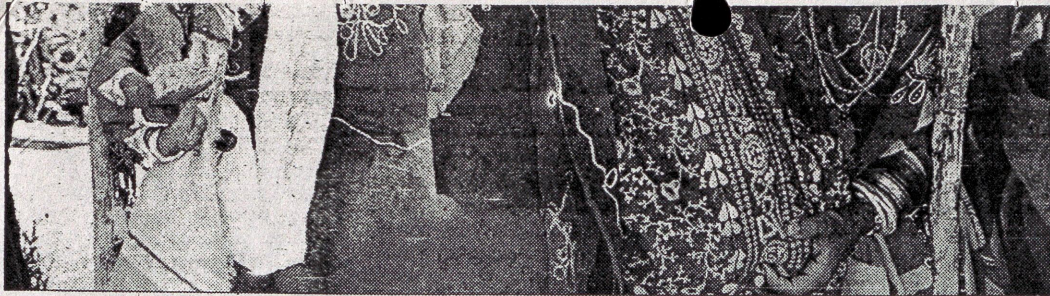
*AK will check
at end of the
month when
he meets
Ranjit*

*MS - will look at
errors in Van Panthayat
VS - to send
comments*

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* Add names of peer reviewers?



A colourful bridegroom of the Vadi (snake charmer) community being ushered into the marriage venue at Harij in Patan. Forty-two couples tied the knot in the first ever mass marriage in the Vadi community on Friday with the assistance of the state.

'Earthquakes are inevitable, but rising tolls are not' BJ doctors thro

Shyam Parekh
Times News Network
AHMEDABAD: *Scenario: India's populous Capital Delhi is struck by a major earthquake.*

Effect: Most of the deaths in the Capital (nearly half), will occur due to building collapse. Problems like those related to emergency response, medical care, fires and search and rescue, respectively, will take rest of the toll.

These are the findings of a pilot project report of the 'Global Earthquake Safety Initiative' (GESI) study, carried out globally in 21 cities, including New Delhi and Mumbai.

Prepared by the GeoHazards International (GHI) and the United Nations Centre for Regional Development (UNCRD), the report points out earthquake vulnerability of the cities and mitigation options to counter the disasters.

GHI will embark on a similar study of Gujarat, initially cover-

ing cities like Ahmedabad, Vadodara and Surat, and later on covering more than 30 urban areas, said GeoHazards president and noted seismologist Brian Tucker.

This former head of the state of California's GeoHazards program, believes "earthquakes are inevitable, but the increasing death tolls are not."

Tucker told Times News Network that "simple measures can be used in advance to reduce the hazards of big quakes and help regions such as Gujarat, to avoid rising death tolls and economic collapse."

GHI, which is a non-profit organisation working to reduce death and sufferings due to earthquakes in the world's most vulnerable communities. "I believe that seismology has better applications in the public policy" he said.

It also found that the world's urban population is becoming

more and more earthquake threatened, particularly in developing countries. This is despite the fact that quake resistant design and materials would require only an extra 5 to 10 per cent of the new construction costs.

It suggested, in case of Delhi, that "constructing buildings well (to the best possible standards) for the next ten years and improving its medical preparedness will prove to be the most effective of steps."

Besides, the report suggests that the Capital needs to remove the most vulnerable five per cent of the buildings and engineer the new ones to withstand the amplified shaking on soft soil.

However, "investing in search and rescue would not be significantly beneficial, as the majority of life loss will not be due to inefficient search and rescue operations. But this does not mean that any lives will not be saved by search and rescue in Delhi, it means that compared to other

Passers-by foil chain snatching bid

Times News Network
AHMEDABAD: A bid to snatch a gold chain was foiled on Friday by passers-by who responded to a woman's alarm.

According to police, Preeti

Patel, a resident of Ajay Tenelement, Amraiwadi, was passing by the Durga High School around 3.45 pm, when one Afzal Memon of Upleta, in Rajkot district, snatched away the gold

chain which she was wearing.

As Preeti raised an alarm and pointed at the youth, who tried to escape, people overpowered him and handed him over to the Maninagar police.

Times News Network

AHMEDABAD: Six members of the Gujarat University executive council have said that contractors working on the broken building after the January 26 earthquake last year, have defrauded the University of Rs 2 crore. K S Shastri, Narhari Amin, Sudhir Nanavati, Yogendra Vyas, M N Desai and B J Pandya as part of the building committee have made the allegations in a letter to the vice chancellor.

"According to me, there is a prima facie case of fraud by the contractors and the engineer D R Shah," Nanavati told TNN. "The vice-chancellor should immediately initiate criminal proceedings."

The committee has said that the contrac-

tors are demanding rates 10 times over those fixed by the government. They have alleged that D R Shah should not have been asked to do the work in the first place as they rates quoted in the tender itself are much higher than those stipulated by the government.

The members have suggested setting up an independent inquiry by a retired Gujarat High Court judge. They allege that none of the procedures have been followed and norms have been broken at every step.

The committee also alleged that the contractors did not even stay true to the astronomical figures they had initially quoted in the tender. The bills that they submitted had

even higher rates 2 crore more than decided.

Executive committee because the contract unjustified rates, that did not need some cases waterly have taken and was removed.

The university controversy even Grants Commission for the repair council member alleged that the

Times News Network

AHMEDABAD: The Junior Doctors Association (JDA) of the BJ Medical College has threatened to go on a strike on Tuesday if the government does not clarify whether the remuneration they get is stipend or salary.

The Junior Doctors Association of the KM School of Postgraduate Medicine & Research has also threatened to go on strike on Monday-Tuesday to protest the non-recognition of most PG courses by the Medical Council of India.

In the case of BJ doctors, they are apparently miffed to get a letter from their PG director stating that all resident doctors should file I-T returns by January 31, 2002, as earnings are liable for tax deduction. If they fail to do so, they will not be

sources of risk, inefficiency in search and rescue is small," it makes it clear.

Early observations made by GHI about the vulnerability of Mumbai to an earthquake, indicate that 50 per cent of the city's 12 million people are concentrated in the main business district of the city. This being located at the tip of a peninsula, there exist only a few transportation routes.

Moreover, buildings in the city lack any seismic design considerations despite the fact that Mumbai has recently been evaluated to be in a zone of significant seismic activity.

"What we found is that the risk is very much constant and the solutions can be put in place. It has seemed that risk is mysterious and tragedy certain. But in fact, we can know both what will happen and

what to do about it beforehand," Tucker observes.

Over 85 per cent of the world's urban population at risk from earthquakes lives in developing nations, yet, the study notes, only 15 per cent of research in earthquake engineering is focusing on problems in these regions of the world.

"There are over 380 cities with populations over one million that are at high risk from earthquakes," he said. "Our study demonstrates that this risk is knowable, and in each city we can recommend specific solutions to reduce the risk."

In the Asian region, a person living in Kathmandu is about nine times more likely to be killed by an earthquake than a person living in Islamabad and about 60 times more likely than a person living in Tokyo.

CITYSCAN

Free medical camp

The SAL Hospital & Medical Institute has organised a free medical camp at the ongoing Special Olympic Games for the mentally-challenged organised at the M G College of Science. A team of medical experts have been posted at the games' venue to handle any emergency first-aid medicine.

Inauguration Today

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• IITV (C-Arm) Facilities • Complete Solution for Prostatic Problems, T.U.R.P. • Male Infertility Problems, Micro V.F.a. Vasectomy, • Male Erectile Dysfunction, Penile Prostheses

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*Revised
SAP chap
sent*

Sharif overhauls team

ISLAMABAD: In a desperate bid to pull Pakistan out of economic crisis, Prime Minister Nawaz Sharif has completely overhauled his economic team and changed his finance minister for the second time in the last three months, apart from announcing an attractive dollar bond scheme.

In a sudden move, Sharif appointed his lieutenant, Ishaq Dar, as the new finance minister and changed almost the entire economic team of the country on Friday. (PTI)

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WEATHER



State: Dry weather over Gujarat state, Diu, Daman, Dadra and Nagar Haveli during the next 24 hours.

Ahmedabad: Mainly clear sky and no significant change in the night temperature have been forecast for Sunday.

The maximum temperature on Saturday was 32.5°C, one degree below normal, and the minimum 12.8°C, four degrees below normal.

Relative humidity at 8.30 a.m. - 61 per cent and at 5.30 p.m. - 50 per cent. Sunrise 6.44 am, Sunset 5.58 pm, Moonrise 10.10 pm, Moonset 10.51 am.



Trigger-happy Santokben trains guns on Bollywood biopic

By Shyam Parekh

RAJKOT: The stoic tattooed face is apparently unruffled by the intrusion in her palatial bungalow, but the rapid eye movements are furtive and commanding.

She seems nothing out of the ordinary and might as well have been stoking wood in a *chulha* in a rustic household of Saurashtra. Instead, she chose to pull triggers and avenge the death of her husband, Sarman Munja Jadeja. Today, she is no longer the coy bride of Bokhira village in Porbandar. A mere gesture could spring dozens into action and make people shudder hundreds of kilometers away from Porbandar, her main centre of operation.

That's Santokben Jadeja. Much dreaded, much discussed and now on celluloid, justifying her transformation as an attempt to save her family and supporters from "the vicious clutches of enemies and the ruthless police".

"I am a mother and I wanted security for myself and my family after my husband was murdered. They were harassing us, what had

to be done was done for saving ourselves," she puts it matter-of-factly. Soon after the trigger, the "iran chopdi pass" (three years of schooling) lady in her fifties gunned for politics. The memory of her walking into the state assembly armed with a revolver still gives her peers the goose-bumps.

Impressed with this unusual "rags to riches and politics too" story, Bollywood script-writer Vinay Shukla decided this was ideal substance for his directorial debut — *Godmother*.

Despite Shukla's claims that the movie is not a picturisation of Santokben's life, the story, scenes, characterisations and treatment of the movie suggest that the only aberration from real life are in the names and a few changes in the plot.

Depiction of the female protagonist, Rambhi, played by Shabana Azmi, has kicked up a controversy. The conservative and tight-knit Mer community of Saurashtra, better known for its hospitality, is angry that the widow of their

leader was shown smoking and drinking in the movie. "Women in our community never smoke or drink, not well-to-do people like us, not even the commoners," says an agitated Santokben.

The reactions were immediate. The world-renowned Raas Mandali of Porbandar turned down the offer to perform for the movie. Santokben's brother-in-law, Bhura Munja Jadeja, another former legislator, has threatened to sue the producers, if the film in any manner damages the family's reputation. Even a reputed cinema hall in Rajkot is believed to have refused to host the premiere!

Despite her notoriety, one would fail to relate her with the underworld no matter how hard one might try. The police may want her in number of cases of killings, extortion, arms-peddling and real estate disputes, but in real life she seems to have assumed the poise and composure which is characteristic of gangland dons.

"Whatever I did and whatever

the extensive linguistic reorganisation of states in 1956, the bifurcation of the bilingual Bombay state into Maharashtra and Gujarat in 1960, the division of Punjab in 1966, the creation of the northeastern states since then — have all been preceded by much agitation, national introspection, and finally reluctant acquiescence.

A survey done for The Times of India by Development & Research Services (DRS) brings out well the ambivalence in national attitudes towards the recurrent demands for statehood in small regions.



cient in addressing the needs of the people. And there is similar support for the arguments that smaller states can help to meet and contain regional aspirations and thus pro-

would damage the economy of the divided states; and that properly constituted autonomous councils should be enough to fulfil genuine regional aspirations.

Thus it is not surprising that the considered opinion is divided about the formation of smaller states — with 46 per cent in favour and 38 per cent against.

And, 55 per cent agree that the best course is the circumstances might be to have such issues decided democratically by referendum among the people of the concerned regions.



Inspired by Porbandar legend, Made in Bollywood?

SUNDAY SPECIAL

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CENTRAL FOREST BELT	Dilip Gode, VNCS, Nagpur	Yes 10.4.02	----	-----	Yes, 6.5.02	AK	7.7.02		BMS to comment
EAST COAST	L. Kannan, Annamalai University, Parrangipettai	Yes, Actions chapter Yes, revised actions chapter, 8.3.02 Yes, full draft end March	AK, MVMW	29.12.2001 &11.1.02					MVMW to follow up
EASTERN GHATS	T. Pullaiah, Sri Krishna Devaraja University, Ananthpur	Yes, October, 2001	AK	Nov '01	Yes, early april				PVS to check on latest status
GANGETIC PLAINS	Jamal Khan, Wildlife Society of India	Yes, Nov 29 th 01	RC, KK	Yes					RC to follow up
NORTH EAST INDIA	R.S.Tripathi, NEHU, Shillong	Actions chapter recd. 22.12.01 Yes, full draft 26.6.02							PCB, Gam to sent comments
SHIWALIKS	H.S.Mehta, ZSI, Solan	Yes, March 02	VS	Yes, 28.5.02					VS to check on the latest status

Vijaya
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WEST COAST	M.N.Madhyastha, Mangalore University, Mangalore	Yes, Nov 28 th 01	KK MVMW	Dec 20 th 01 17.1.02	Yes	MVMW	12.3.02		MVWM to Follow up
WESTERN GHATS	Ranjit Daniels, Chennai Snake Park, Chennai	Yes	AK	Sept/Oct '01	Yes	DS	12.1.02		Final version of the Draft ready? DS to follow up
WEST HIMALAYAS	S.P.Singh, Kumaon University, Nainital	Action points: 1 st set 2 nd set Full SAP chapter 25.2.02 Full draft received Mid- July 02	AK AK	Jan 2002 29.1.02					VS to sent comments

LIST OF BSAP DRAFTS RECEIVED FROM ECOREGIONS (as on 28.6.2001)

Ecoregion	Name of nodal agency/coordinator	Received 1 st draft, date	Commented on, by whom	Comments sent, date	Received 2 nd draft, date	Commented on, by whom	Comments sent, date	Sent/ endorsed by MoEF	Remarks (including Comments to be sent, and urgent follow up)
ARAVALLI	VD Sharma, Paryavan Prahari, Jaipur	Yes, Nov 7 th , 01	KK AK	Nov '01 22.12.2001	Yes	KK	10.4.02	Sent, endorsed	
CENTRAL FOREST BELT	Dilip Gode, VNCS, Nagpur	Yes 10.4.02	AK AK	Yes Yes	Yes, 6.5.02				BMS. AK to comment
EAST COAST	L. Kannan, Annamalai University, Parrangipettai	Yes, Actions chapter Yes, revised actions chapter, 8.3.02 Yes, full draft end March	AK, MVMW	29.12.2001 &11.1.02					
EASTERN GHATS	T. Pullaiah, Sri Krishna Devaraja University, Ananthpur	Yes, October, 2001	AK	Nov '01	Yes, early april				PVS to check on latest status
GANGETIC PLAINS	Jamal Khan, Wildlife Society of India	Yes, Nov 29 th 01	RC, KK	Yes					
NORTH EAST INDIA	R.S.Tripathi, NEHU, Shillong	Actions chapter recd. 22.12.01 Yes, full draft 26.6.02							
SHIWALIKS	H.S.Mehta, ZSI, Solan	Yes, March 02	VS	Yes, 28.5.02					
WEST COAST	M.N.Madhyastha, Mangalore University, Mangalore	Yes, Nov 28 th 01	KK MVMW	Dec 20 th 01 17.1.02	Yes	MVMW	12.3.02		
WESTERN GHATS	Ranjit Daniels, Chennai Snake Park, Chennai	Yes	AK	Sept/Oct '01	Yes	DS	12.1.02		

WEST HIMALAYAS	S.P.Singh, Kumaon University, Nainital	Action points: 1 st set 2 nd set Full SAP chapter 25.2.02	AK AK	Jan 2002 29.1.02					Action points to be provided for full draft
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LIST OF BSAP DRAFTS RECEIVED FROM THEMATIC GROUPS (As of 05.7.02)

Themes	Name of the coordinator	Received 1 st draft, date	Commented. by whom	Comments sent, date	Recd. 2 nd draft	Commented. by whom	Comments sent, date	Sent/ endorsed by MoEF	Remarks (including Comments to be sent, and urgent follow up)
ACCESS, B-SHARING, IPRS	Biswajit Dhar	Yes, Mid June 02	AK Anuradha	2.7.02 4.7.02					VSD to follow up
CULTURE	K.C. Malhotra	Yes	AK (on exe. Summary) SB (on full draft)	4.6.02 5.6.02					Sent for peer review to more than 67 persons
DOM BIO	T.N.Prakash	Zero (Ver. 0) Yes, First draft received, 23.5.02	AK	23.1.02					PVS to send comments
ECONOMICS	Gopal Kadekodi	Yes	AK	27.12.01(Ch 4-8)	Yes, 26.11.01				AK to follow up
EDUCATION	Kartikeya Sarabhai & Sanskriti Menon	Yes <i>Full draft</i>	AK <i>SB, SP</i>	19.7. 01 <i>Yes</i>	SAP chapter, Nov 01 <i>Full draft?</i>				SB to send comments
HEALTH	A.V. Balasubramanian	Yes, strategies 14.12.01 Yes, full draft 15.2.02	AK DS	21.1.02 Yes					DS to follow up

LIVELIHOODS	Manju .S. Raju	Coastal 1.2.02 Forests, Feb 02 Pastoralist, 23.5.02	AK T. Kocherry MS MS	Feb 2002 4.1.02 28.2.02 01.6.02					Needs urgent follow up for the rest of the chapters.
MICRO ORGANIC	B.N. Johri	Yes Dec 01	BT VA	20.2.02 <i>sent</i>					VA to follow up
NATURAL AQUATIC	K. Venkataraman	Yes 6.3.02	MVMW	<i>Yes</i>					MVMW to follow up
NATURAL TERRESTRIAL	J.S. Singh	Yes, rough draft of SAP chap, March 02 Yes Full draft, 22.5.02							RC to send comments
POLICIES, LAWS	Harsh Mander	Yes, 16.2.02	AK VSD	17.3.02 Early April??					VSD has sent comments but not sure whether it was forwarded to the coordinator VSD to follow up
WILD ANIMAL BIO	Ajith Kumar	Yes 23.5.02	RC	<i>sent</i>					PCB to send comments
WILD PLANT BIO	Uppeendra Dhar	Actions chap Profiles Yes full draft, 3.6.02	AK, RC	Yes, 16.12. 01					VS to send comments