Conservation-induced displacement of human communities from Protected Areas: Issues and Challenges

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Presentation Outline...

- Context
- Tiger Reserve Network in India
- Critical Tiger Habitats
- The Forest Rights Act
- The Resettlement Agenda/Process
- Lessons Learnt
Historically, many protected areas were created as recreational areas for urban elites.
Protected areas now are also portrayed *inter-alia* as a means of poverty alleviation and sustaining livelihoods of resource dependent community.
Effective protected area management requires active participation of local communities.
Wildlife conservation is invariably in 'conflict' with economic development.
Establishment of protected areas/conservation areas often leads to dis-enfranchisement of local communities from land and resources.

Unfortunately, many of the above assumptions are not backed with scientific facts/evidence and most of the discussion is largely ‘emotive’.
Conservation Goals v/s Societal Goals...

**Conservation Goals**
- Protect wild species & habitats
- Maintain ecosystem services

**Societal Goals**
- Alleviate poverty
- Eradicate disease
- Maintain social equity
- Enhance economic growth

Human well-being
What is Conservation-induced displacement...?

- Conservation-induced displacement is the involuntary restriction of access to legally designated parks and protected areas, resulting in adverse impacts on the livelihoods of the displaced persons (Cernea, 2006, World Bank, 2002).

- ‘Displacement that includes individuals or communities who, through park creation or management, may lose land, means of livelihood, social support system or ways of life (ADB, 2002)’.

- We need to clearly distinguish between ‘conservation-related human displacement’ and ‘developmental project related human displacement’.
What is the evidence that human presence is negative to conservation?

What is the evidence that there exists a ‘calculus of gains and losses’ through which the worst effects of ‘involuntary displacement can be balanced by gains for conservation through displacement’?

Aggressive conservation or aggressive compensation!

Incentive driven relocation/ re-settlement or coercive displacement!
- India has set-up a network of 39 tiger reserves covering 455580 sq.km
- India’s tiger population is 1411 (range 1165 to 1657), WII, 2006
Time & Effort

- Tiger / Carnivore – 3 days
- Ungulates – Preparation 2 days, 3 days sampling.
- Habitat & Human Influence – 1 day along with ungulate encounter rates.
- Pellet / Dung sampling - 1 day along with ungulate encounter rate.
- Total Maximum of 8 day exercise for each beat with 2 persons working in each beat.

Effort Invested by State Forest Departments

- Between November 2005 to February 2006, 21,989 beats (sampling units) were surveyed involving 352,000 man days, 132,000 km of line transects and 330,000 km of carnivore sign-surveys were done.
- An unprecedented effort for any scientific wildlife survey conducted till date in the world!

Source: Dr. Y.V. Jhala, Dr. Rajesh Gopal, Shri Qamar Qureshi, NTCA-WII 2008
What is ‘Critical Tiger Habitat’…?

“Critical tiger habitat” means such areas where it has been specifically and clearly established case by case, on the basis of scientific and objective criteria, that such areas are required to be kept “inviolate” for the purpose of wildlife conservation as may be determined and notified by the Central Government after open process of consultation.
Anthropogenic Pressures and Tiger occupancy

People Seen in Forest

Source: Dr. Y.V. Jhala, Dr. Rajesh Gopal, Shri Qamar Qureshi, NTCA-WII 2008
Anthropogenic Pressures and Tiger occupancy

Livestock in the forest

Livestock when Tiger absent

Livestock when Tiger present

t test

P < 0.001

Livestock dung in the forest

Livestock pellet when Tiger absent

Livestock pellet when Tiger present

t test

P < 0.001

Source: Dr. Y.V. Jhala, Dr. Rajesh Gopal, Shri Qamar Qureshi, NTCA-WII 2008
Anthropogenic Pressures and Tiger occupancy

Changes in Canopy Cover

- Canopy when Tiger absent
  - Count

- Canopy when Tiger present
  - Count

- Human and Livestock trail
  - Trail when Tiger absent
  - Trail when Tiger present

Source: Dr. Y.V. Jhala, Dr. Rajesh Gopal, Shri Qamar Qureshi, NTCA-WII 2008
Changes in Forest area

- Forest area when Tiger absent
- Forest area when tiger present

**t-test**

\[ P < 0.001 \]

Source: Dr. Y.V. Jhala, Dr. Rajesh Gopal, Shri Qamar Qureshi, NTCA-WII 2008
Wild Ungulate Prey   Vs Tiger Density

\[ P=0.0002, R^2=0.77, \]

Tiger Density =0.665+4.66 wild ungulate prey

Source: Dr. Y.V. Jhala, Dr. Rajesh Gopal, Shri Qamar Qureshi, NTCA-WII 2008
How to determine ‘Critical Tiger Habitat’…?

- Tiger territories are determined by prey availability.
- Tiger’s need inviolate spaces for breeding and rearing of cubs.
- For a population of 20 tigresses we need an ‘inviolate’ area of about 800-1200 km².

### Expected Tiger Population in an Typical Tiger Reserve

*For 20 breeding Tigresses*: Core Area Required (Inviolate) 800-1000 km²

**Total Population in the Core (inviolate):** Male Tigers 8-10; Cubs < 1 Year 10 -15; Cubs 1-2 Year 10 -15

**Buffer** (Co-Existence Area with eco-sensitive land use)

Area Required 1000-3000 km²

- 2-3 Year old tigers (recent dispersers) 10 -15
- 3-4 Year old tigers older dispersers 10 -15
- Old tigers & Surplus breeding age tigers 10-15

**Total Tiger Population in the Tiger reserve** 75 – 100 Tigers

*Source: Dr. Y.V. Jhala, Dr. Rajesh Gopal, Shri Qamar Qureshi, NTCA-WII 2008*
Inviolate Area

A dynamic concept and mainly a function of habitat productivity

For 20 breeding ♀ -800-1000 km²
Total Population in the Core
Tigers = Male 8
Cubs < 1 Year = 10 -15
Cubs 1-2 Year = 10 -15

Buffer -- 1000-3000 km²
2-3 Year olds = 10 -15
3-4 Year olds = 10 -15
Old tigers & Surplus breeding age Tigers = 10-15

Tot Pop = 75 – 100 Tigers

Source: Dr. Y.V. Jhala, Dr. Rajesh Gopal, Shri Qamar Qureshi, NTCA-WII 2008
Inviolate Area

- Varying Population Size (5-25 breeding units, i.e. in 400 to 2000 sq km of good tiger habitat)
- Connectivity for immigrants (1-5 per year) crucial for small population
- Tiger populations < 20 breeding units (1000 sq. km) survive only with immigration.
- Larger units (> 20 breeding units, 1000 sq. km) have potential to persist for longer durations (> 100 years) in scenarios of low intensity catastrophes (high poaching pressure, habitat loss and epidemics).

Source: Dr. Y.V. Jhala, Dr. Rajesh Gopal, Shri Qamar Qureshi, NTCA-WII 2008

Populations having

- Demographic & Genetic Viability
- Potential Demographic & Genetic Viability
- Ecological Significance

Source: Dr. Y.V. Jhala, Dr. Rajesh Gopal, Shri Qamar Qureshi, NTCA-WII 2008
How to determine ‘Critical Tiger Habitat’…?

Based on the demographic parameters and life history of tiger population, simulation models suggest that if a core area having territories of 20 breeding tigresses were made ‘in-violate’, the resultant tiger population with an adequate buffer will have a very low probability of extinction (<5% in 100 years)

Demographic Parameters of Tigers used for Simulation Models

- Adult sex ratio 2.4 tigresses: 1 male tiger
- Birth Interval 20 – 28 months
- Sex ratio at birth 50:50
- Survival of Cubs up to 1 Year : 50%, 40-80% Range
- Survival of 1 Year Old : 70% (CV 15%)
- Survival of 1-2 Year Old : 85% (CV 15%)
- Survival of >2 Year Old : 95% (CV 10%)
- Fecundity : litter size average 2.4, range 1 to 5

Source: Dr. Y.V. Jhala, Dr. Rajesh Gopal, Shri Qamar Qureshi, NTCA-WII 2008
## Villages/Settlements located in Tiger Reserves

<table>
<thead>
<tr>
<th>No. of Villages in Core/Critical Tiger Habitat</th>
<th>No. of Villages in the Peripheral Buffer Areas</th>
<th>No. of families in villages falling in Core/Critical Areas</th>
<th>No. of families in villages falling in Peripheral Buffer Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>762</td>
<td>3678</td>
<td>48549</td>
<td>227971</td>
</tr>
</tbody>
</table>
Creation of ‘inviolate spaces’ for the conservation of key wildlife species is mandatory as per the Wildlife (Protection) Act, 1972 and Scheduled Tribes and Other Traditional Forest Dweller (Recognition of Forest Rights) Act, 2006.
The Forest Rights Act, 2006

An Act to recognize and vest the forest rights and occupation in forest land in forest dwelling Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for generation but whose rights could not be recorded.

Source: Ashok Sharma, C.C.F. Admn. (W.L.), Govt. of Maharashtra
This necessitates relocating people living within such critical areas after payment of compensation for right settlement and relocation package.
The National Tiger Conservation Authority (NTCA), Ministry of Environment and Forests, Government of India has formulated relocation / rehabilitation packages for people living inside core / critical areas of Tiger Reserves in the country, in consonance with the “National Rehabilitation and Resettlement Policy, 2007”.
The relocation package, under the Centrally Sponsored Scheme, proposed by the Authority has two options:

- **Option I** – Payment of a package amount of Rs. 10 lakhs or US $ 22,000 per family in case the family opts so, without involving any rehabilitation / relocation process by the Forest Department.

- **Option II** – Carrying out relocation / rehabilitation of village from protected area / tiger reserve by the Forest Department. In case of Option II, following package (per family) is proposed, at the rate of Rs. 10 lakh or US $ 22,000 per family:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Percentage of the total Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Agriculture land procurement (2 hectare) and Development</td>
<td>35%</td>
</tr>
<tr>
<td>b.</td>
<td>Settlement of rights</td>
<td>30%</td>
</tr>
<tr>
<td>c.</td>
<td>Homestead land and house construction</td>
<td>20%</td>
</tr>
<tr>
<td>d.</td>
<td>Incentive</td>
<td>5%</td>
</tr>
<tr>
<td>e.</td>
<td>Community facilities for re-settled families (access road, irrigation, drinking water, sanitation, electricity, telecommunication, community center, religious places of worship, burial / cremation ground)</td>
<td>10%</td>
</tr>
</tbody>
</table>
The Re-settlement Agenda/ Process

The re-settlement process is being monitored / implemented by two Committees:

(State-Level Monitoring Committee)

a. Chief Secretary of the State – Chairman
b. Secretaries of related departments – Members
c. State Principal Chief Conservator of Forests – Member
d. Non-official members of respective - Members
   Tiger Conservation Foundation
e. Chief Wildlife Warden - Member-Secretary
The Resettlement Agenda/Process

(District-Level Implementing Committee for ensuring convergence of other sectors)

a. District Collector - Chairman
b. CEO - Member
c. Representative officials from PWD, Social Welfare, Tribal Department, Health Department, Agriculture Department, Education Department, Power and Irrigation Departments - Members
d. Deputy Director of the Tiger Reserve/PA - Member Secretary
The Resettlement Agenda/ Process

(District level Implementing Committee for ensuring convergence of other sectors)

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Glimpses of Resettlement Process...

Bori village before relocation
Photo: STR

House construction work is completed in New Bori village
Photo: STR

contd...
Glimpses of Resettlement Process...

Fertile agricultural lands given to the villagers
Photo: STR

Sprinkler provided for irrigation
Photo: STR

contd...
Glimpses of Resettlement Process...

Aanganwadi Center  Photo: STR

Community Hall  Photo: STR

School Building  Photo: STR

Teaching in progress in the school  Photo: STR
Lessons Learnt....

◆ There are both challenges and opportunities in both planning and implementing conservation-induced human displacement

◆ For re-settlement process to succeed it should be incentive-driven, generous, fair, transparent and expeditious

◆ Resettlement process should ensure human dignity, aspirations and culture of local communities

contd...
Lessons Learnt….

- Good faith negotiations and prior-informed consent and effective implementation are essential ingredients to ensure a ‘win-win’ outcome of the resettlement process.
- ‘Hand-holding’ for extended period(s) and engagement of credible civil society organizations in the resettlement process has beneficial outcomes.
Lessons Learnt….

- Abundant caution, adequate oversight, constant independent monitoring and evaluation of resettlement process is critically needed for achieving success.

- Relocating 762 villages and 48549 families from ‘core critical tiger habitats’ in 39 tiger reserves in India is undoubtedly a tall order. The National Tiger Conservation Authority (NTCA) and the Government of India are committed to provide upto Rs. 4000 crores or US $ 800 million to ensure the continued existence of wild tiger populations and well-being of local communities.
Thank you...