A report on the

Evaluation of the effectiveness of existing conflict mitigation approaches in Valmiki Tiger Reserve

Under the project

'Development of cross-border approaches to mitigate conflicts between humans and elephants and to protect small farmers at the foot of the Himalayas'

Project Partners-

Implementing partner-

Prepared by-

Nature Environment & Wildlife Society (NEWS), India

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1. Abstract:

The Asian elephant (*Elephas maximus*) population, across the ranges of terai lowlands, come into conflict with people because of infringement on the corridors connecting the forests, that are vital for elephant movements. Besides, their crop-raiding behaviour is increasingly affecting livelihoods of the farmers. In response, the local people react with various deterrent methods whichever are comparatively effective. The interventions reported to be most effective are chili peppers (i.e., fences, spray, and briquettes) and crop guarding coupled with deterrents. The extent to which these interventions can be applied more widely is unclear as only two studies have examined its efficacy across sites in more than one country. The ignorance of the local farmers about elephant ecology coupled with lack of co-ordination on information flow at various levels has further deepened the crisis for effective human-elephant conflict (HEC) management particularly in the transboundary context. The present study has highlighted on the importance of community-based conflict mitigation methods for both short and long-term measures. Reviewing of existing HEC measures and evaluation of effective interventions, or indeed a combination of interventions, is a continuous process that can be applied across the range of elephant movements to effectively reduce crop raiding at all levels.

Keywords: Asian elephant, Crop raiding, Conflict, Interventions

2. Introduction:

The Asian elephant (*Elephas maximus)* is categorized as Endangered on the IUCN Red List (Choudhury et al., 2008), mainly as a result of loss and fragmentation of its habitat, and conflict with people (Sukumar, 1993). India holds the largest number of wild Asian elephants, estimated at about 26,000 to 28,000 or nearly 60% of the global population of the species (Bist 2002; data from Project Elephant Directorate in 2011). The historical range of the elephant in India, however, has shrunk, confining elephants into distinct geographical zones (Jerdon, 1874; Ali, 1927; Daniel, 1980). Wild elephants are presently confined to the forested hilly tracts of four different regions: (a) the Himalayan foothills in the north (b) the north-eastern states (c) the forests of east-central India, and (d) the forested hilly tracts of the Western and Eastern Ghats in southern India. The distribution of the elephant population in northern India ranges along the foothill forests and floodplains of the Himalayas in the states of Uttarakhand and Uttar Pradesh, and adjoining parts of Nepal. In central Nepal the population of elephants increased from an estimated 13 individuals in 1980 to 21 in 1989 (Smith & Mishra, 1992) and there are now an estimated 20–25 elephants, mostly residing in Chitwan National Park and Parsa National Park. The Valmiki Tiger Reserve, situated in the Gangetic Plains bio-geographic zone of the country, forms the eastern most limit of the Himalayan Terai forests in India bordering the Chitwan and Parsa NP in Nepal. Transformation of the natural habitat into settlements and farmland is giving rise to conflicts between the elephants and human inhabitants of this region. There is a very real threat of from the likelihood of increasing human settlements in this forest patch

between Chitwan NP, Parsa NP (Nepal) and Valmiki TR (India). The south-east of Madi valley, where approximately 9.84 km2 of buffer zone forest has been converted for other land uses in the last 10 years (Chanchani P et al., 2014), happens to be buffer zone forests that link Chitwan NP to Parsa NP in the east and the Valmiki Tiger Reserve (India) in the south (Fig.2) (Dahal et al., 2020).

Valmiki Tiger Reserve is dominated by Tharu and Oraon tribal community who reside all along the India-Nepal border. They are also referred to as the 'Adivasis' and their history in the region dates back around 300 years. In recent years elephants have also been reported in Supaul, Araria, Kishanganj and West Champaran districts from Nepal (Menon et al., 2017).

3. Context:

Valmiki Tiger Reserve, with an area of 898.45 km^2 (346.89 sq. mi), is situated in the northern part of Bihar state. The impact of the elephant corridor passage in Valmiki Tiger Reserve area is mostly felt in Bhatujila and Bhiknathori villages on the Indian side and Nirmal Basti and Thori on the Nepal side respectively. The majority of the villagers are agriculturalists and the cultivated crops are mainly paddy and sugarcane. Elephants come and raid in herds of a maximum 30-35 members or even sometimes singly, when the paddy and sugarcane crops start ripening between September and February of the next year. The population living in the migration corridors lack sufficient knowledge about behavioural ecology and land use behaviour of the elephants to design and implement effective strategies for defence and avoidance. The population of the target villages of Bhatujila and Chakarsen consists mainly of poor and marginalised small farmers and forest users who use improvised methods such as crackers, mashals (fire torches), tractors, motorcycles and beating tins and drums to drive the elephants away. Forest staffs use pipe guns along with high-beam torch lights at night to stop elephants from entering the crop fields. In their attempts to keep the migrating elephants away from their crops and homes, the villagers suffer considerable damage due to crop loss almost every year.

Compensation programmes for damage caused by wildlife are inadequate and involve high bureaucratic hurdles. People living in rural areas were found to have more negative attitudes towards wildlife conservation, as they bear disproportionately high costs of damage caused by wildlife (Bandara & Tisdell, 2003). This creates a hurdle in establishing continued acceptance of the coexistence of humans and elephants.

There are various applied management actions and research-informed conservation practicesstudies demonstrating effective mitigation measures to decrease the rising human-Asian elephant conflict. Such measures include attitudinal changes of humans towards wild elephants, compensation schemes for property loss, food security and various measures for altering animal movements and behaviour (*Meena 2020*). Community participation in both mitigating human-wildlife conflicts and conservation of the wildlife habitats must be prioritized (Montgomery et al. 2020b). The analysis of the effectiveness of the existing measures is focused on determining viable measures to reduce crop damage and conserve the elephant population.

With increasing habitation and conversion of forestlands into agricultural lands, the human elephant conflict situation is increasing as in other protected area habitats. People have a tendency to take selfies with the elephants while they are raiding the crops and this results in unavoidable death. In 2016, a child was killed by a male tusker elephant in Bhiknathori village. However, elephants are also attracted by the locally brewed sugarcane juice especially in the villages inside or near the forest areas. The intensity of crop damage has also been increasing gradually. Nilgai, Wild boar and elephant attacks are constantly increasing, leading the farmers to use even poisons. Damage caused by wildlife can affect people's perceptions, especially when it exceeds a certain level of tolerance (Hill, 1998). People have proved themselves non-destructive but voices for killing, culling and use of guns are also growing.

Aim of the study: All existing conflict mitigation approaches at the pilot sites, such as trenches or electric fences, keeping the elephants away or to deter the elephants, as well as defence techniques such as fireworks or drums, to be documented and evaluated. In order to collect field data, the methods used by the project will be a questionnaire survey, Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs).

Objective of the study:

To evaluate the effectiveness of the existing mitigation measures, with a focus on design, costs and management practices.

Period of the study: March, 2021 to Jan, 2022

4. Methodology:

Initially the pattern of negative interactions between humans and elephants in the project area was collated through discussions with the forest officials, and the required data were collected through literature surveys. Later, semi-structured questionnaire surveys were conducted to understand the perception of the respondents in mitigating the human-wildlife negative interactions. The survey questionnaire was prepared as the means for data collection in order to explore respondents' opinions, clarify interesting and relevant issues, elicit complete information and explore related topics within each interview.

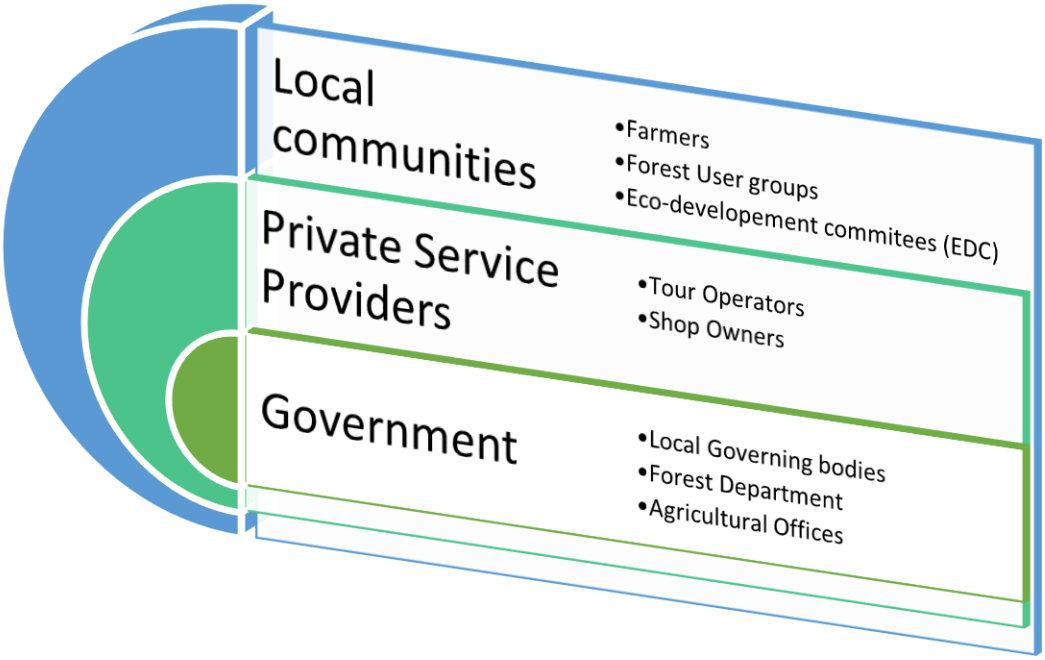

Fig. 1. Stakeholder Mapping

NEWS conducted a total of 108 Semi-structured questionnaire (Annexure 1) surveys in Bhatujila and Chakarsen villages of Valmiki Tiger Reserve, mostly targeting the marginal farmers. Focused Group Discussions (FGD) were done targeting the villagers who had already faced the damage and had the maximum probability to face damage. The population, living close to the forest area or having land near the forest area, were primarily targeted for the survey. The surveys were done by a local community interviewer in Hindi language to avoid the language barrier. Some Key Informant interviews (KII) were conducted directly with conservation practitioners and forest rangers, beat officers, and NGO representatives to understand their perception of the damage caused by wild elephants, and opinions or suggestions on reducing the conflict. The survey was also helpful to evaluate the cost effectiveness of the deterrent tools used. Tabulation of the findings were done in *Microsoft Office Excel* application for further analysis. The geographical coordinates of the crop damage areas, elephant dung, and elephant footprints were noted and used in *Google Earth Pro version 7.3* application for spatial analysis and map generation to identify corridors.

5. Results & Discussion:

Location Map:

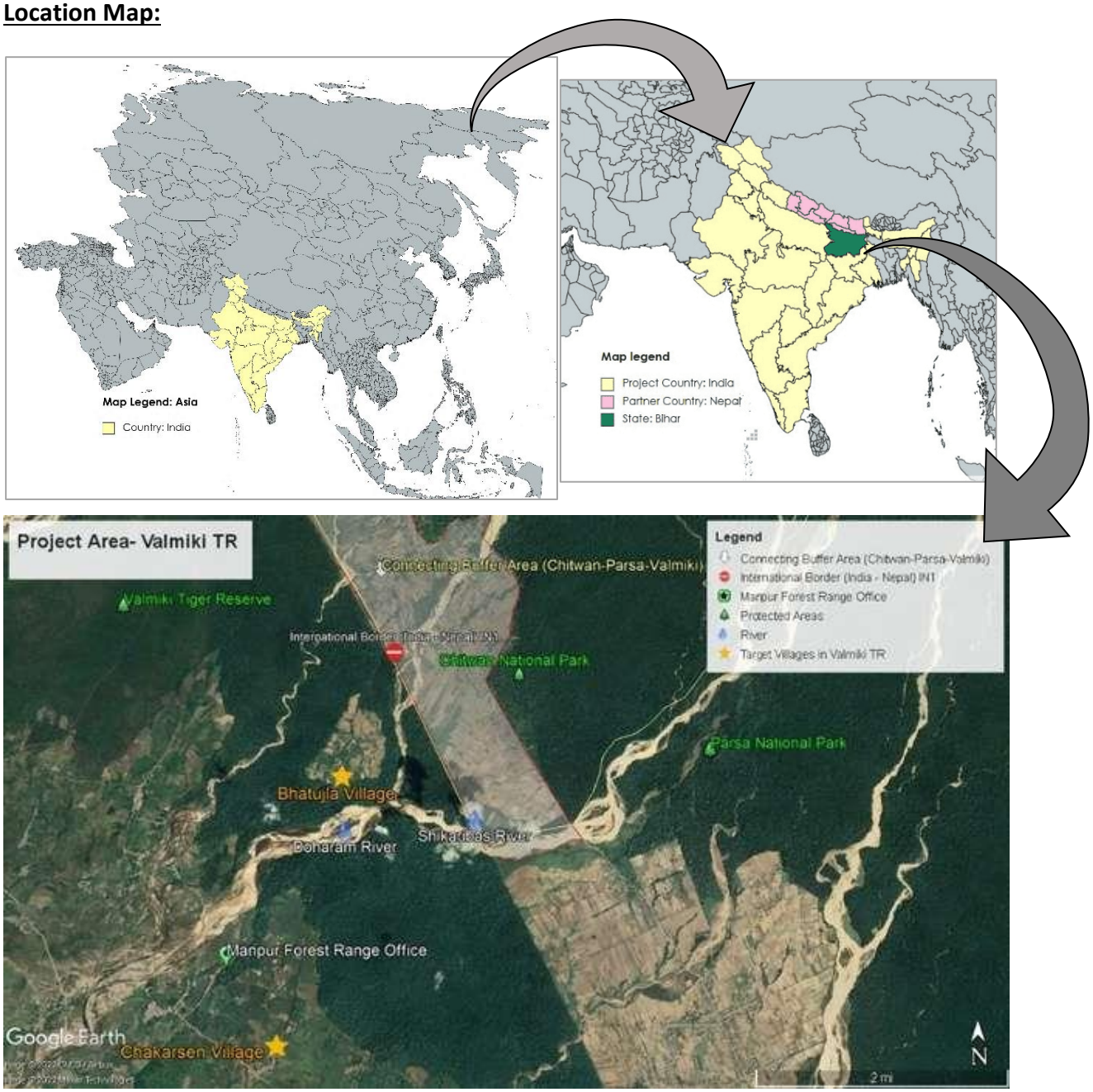

Fig. 2. Map of the Project areas in Valmiki Tiger Reserve, Bihar

Socio-Economic factors:

The elephant movements were mostly felt in Bhatujila, Chakarsen, Ekwa, Parsauni, and Manpur areas under Manguraha Forest Range in VTR. The target villages are Bhatujila under Dhamoura Gram panchayet (local administration) with 110 households and Chakarsen under Mainatand Gram Panchayet with 350 households. They mainly grow crops like paddy, sugarcane, and sometimes wheat, mustards and mango.

The target villages- Bhatujila and Chakarsen are situated next to the India-Nepal international border and are dominated by the Tharu and Oraon tribal communities. Their style of living, values, cultures are different and also needs to be conserved. Being surrounded by rivers, in monsoon months these villages are totally disconnected from the nearby markets and towns. The residents of the target villages are mainly agriculturists and migrant workers. Other income-generation options include small grocery shops, masonry, daily labor etc.

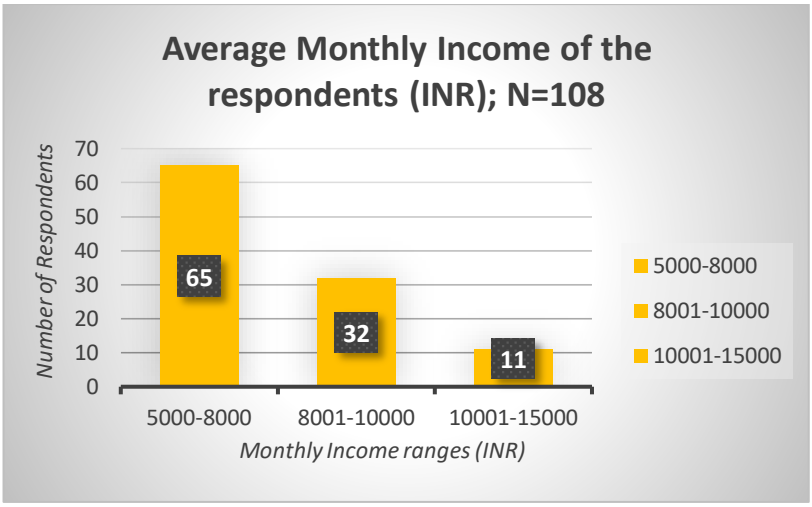

Figure 3: Average monthly income of the Farmers (INR)

According to the survey (Annexure 2; Part-1: *Socio Economic data*) in the study areas in Bhatujila and Chakarsen villages of VTR, it was found that out of 108 respondents (generally farmers) [Total number of respondents (N) =100%], 83 people (77%) have their own land and the other 25 people (23%) have leaseland.

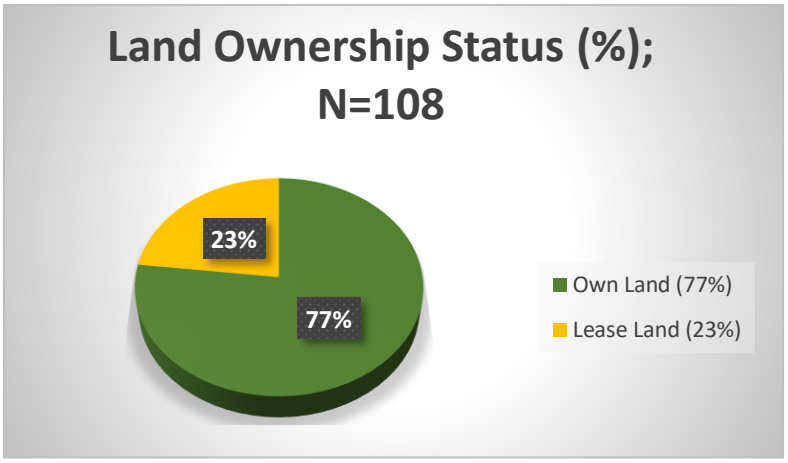

Figure 4: Land Ownership status of the target areas of Bhatujila and Chakarsen villages

Data Analysis:

The secondary data (Annexure 2; Part-2: *Crop damage data*) indicated that crop damage was the most common form of damage by wild elephants in the area. According to the survey-data the ranges of crop-raid percentage of individual's agricultural fields is shown in the following pie-chart.

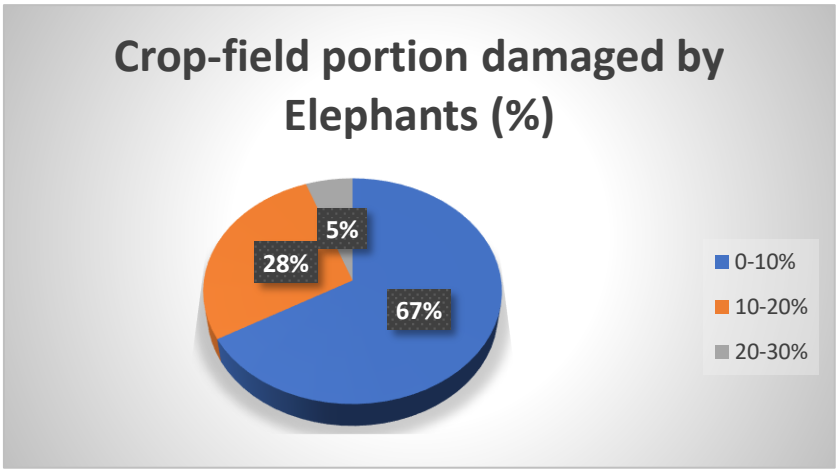

Fig. 5. Crop-field portion damaged by elephants

The main agricultural crops of the farmers are sugarcane, paddy and sometimes wheat which are there in the fields throughout the year. These crops grow throughout the year and needs minimum outlay. Almost every person who planted paddy, sugarcane and wheat suffered damage due to elephant and other herbivore raids (Fig.6).

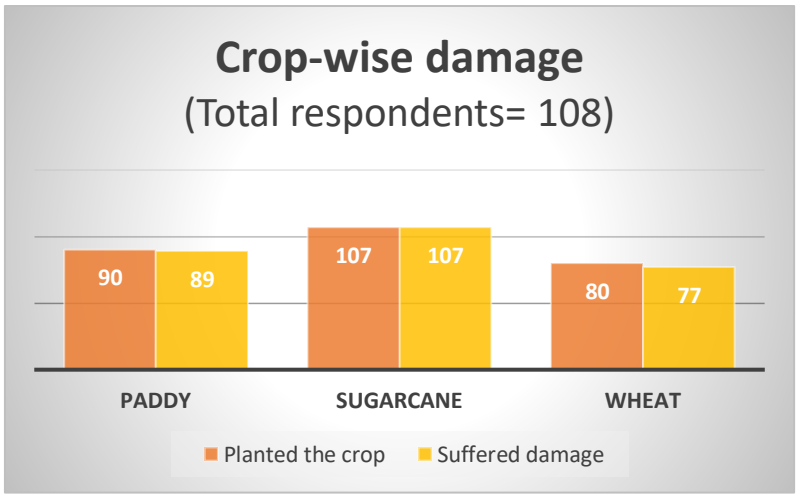

Fig. 6. Crop-wise damage by elephants for each cultivated crop

The farmers are unable to harvest till the standing crops are fully matured and the elephants arrive at the same time (September- December) looking for food. It is also noticed

that the elephants are attracted to the brewed sugarcane juice which are kept in earthen containers in local houses for several days after the harvesting is done. Other herbivores like spotted Deer, monkeys and nilgai sometimes also cause considerable damage to the crops (Fig. 7). The damage caused by elephants is of greater magnitude when compared to other herbivores and usually extends over a month or two. The farmers still manage to get reasonable profits even after the damage and thus continue to follow the same crop pattern where paddy and sugarcane are the main damaged crops.

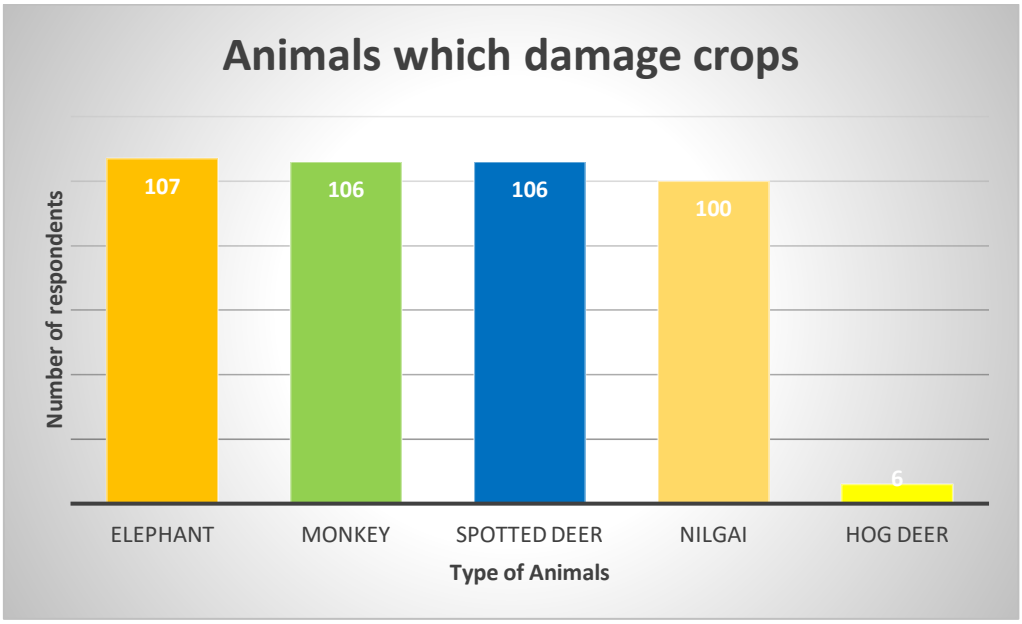

Fig.7. Types of animals which damage crops

There are no significant or any pre-emptive measures implemented in those areas. The farmers often move very close to the pachyderms while chasing them off the crop-fields, sometimes pushing with tractors, throwing stones and fire which in turn, often make the elephants more aggressive towards them and cause more damage. Elephants stay for a period of 1-2 days to a maximum of 7 days, but keep coming back, in the harvesting seasons. As observed by other studies on HEC, crop-raiding takes place from late evening to early morning (Sitati at al. 2003; Venkataraman et al. 2005).

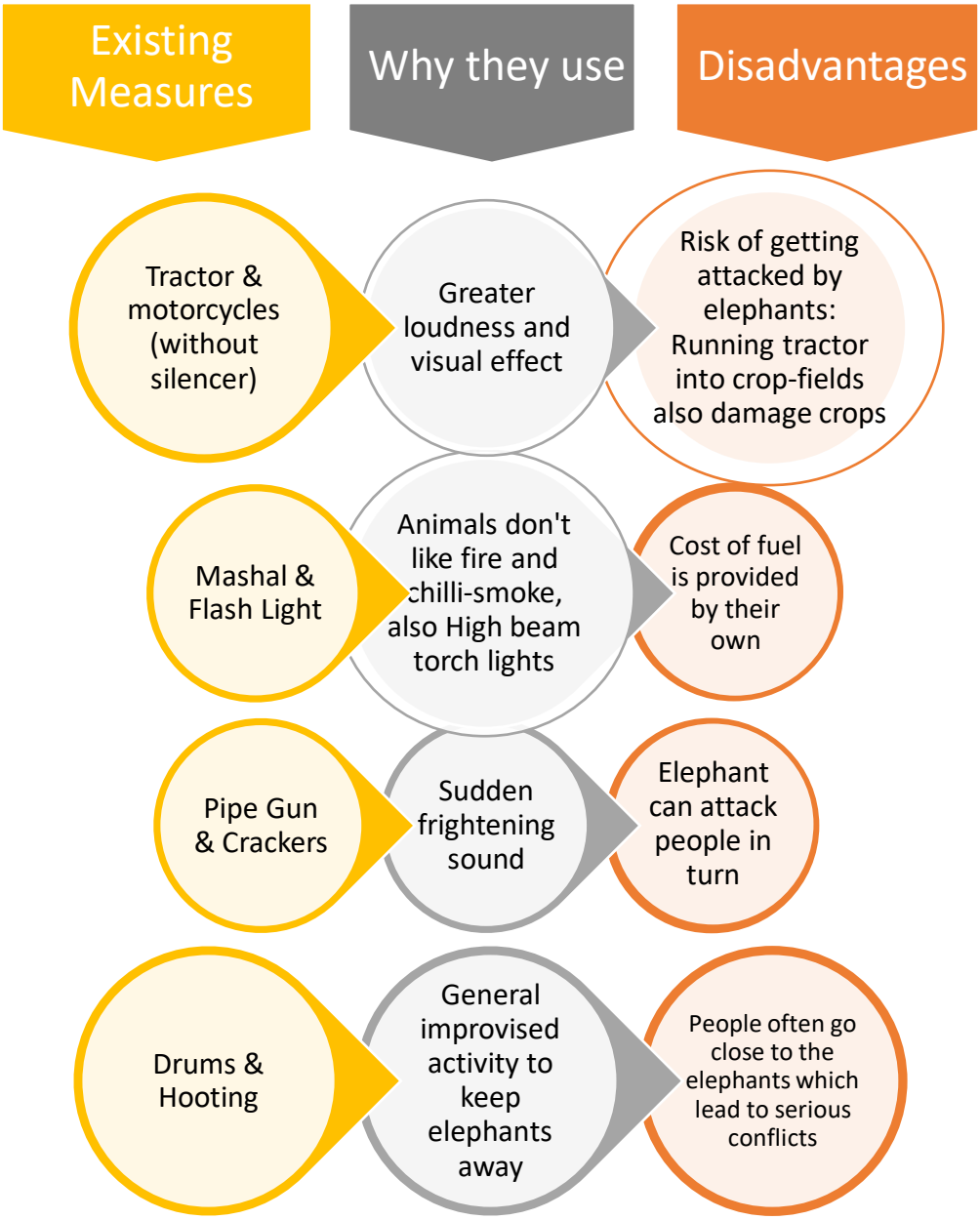

Fig. 8. Existing conflict mitigation tools and its disadvantages

The effectiveness of the utilised tools has been categorized as High, Medium and Low in the survey questionnaire (Annexure 2; Part-3: *Existing Deterrents data*). Maximum respondents (62.5%) mentioned that use of Tractors, Pipe guns, fire and flashlights are highly effective, whereas motorcycles and beating tin are moderately effective.

Respondents from the target villages use improvised methods (on a short-term basis) to deter elephants in the migratory seasons. They use tractor, cracker and high-beam

flashlights as a strong deterrent measure against elephants. The forest department often help them with crackers and Pipe Guns (a pipe-like structure which helps to throw the crackers to a fixed distance to create a sudden-frightening sound). There are other herbivores like Nilgai, spotted deer, Wild boar & Monkeys which forage on the crops almost over the year.

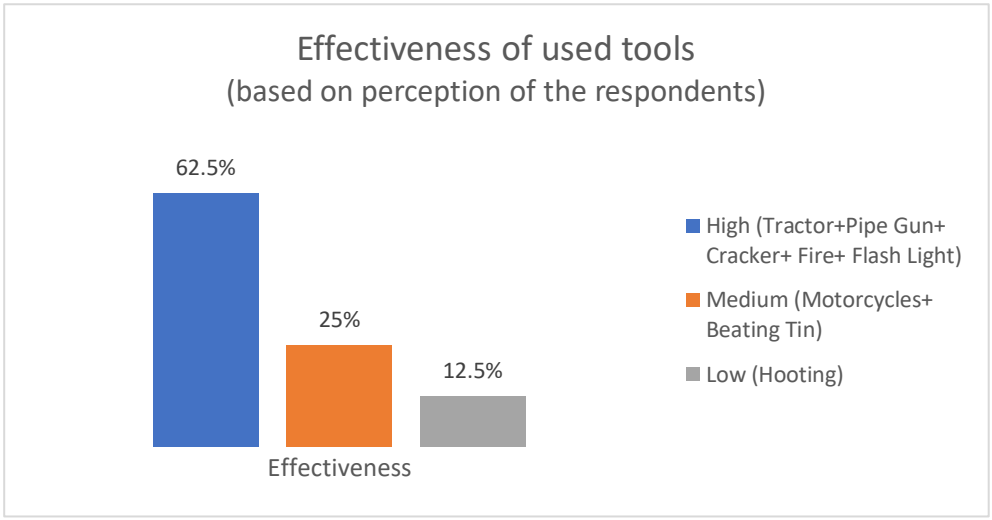

Fig.9. Effectiveness of the deterrent tools used by the respondents

According to the survey, elephants enter the Valmiki Tiger Reserve through the Shikaribas river from Nepal and then take shelter in the forest. They disburse from there towards north and east side of the forest and raid the crops adjacent to the forest. Villagers responded that they are not warned of impending elephant raids, thus it becomes a tedious job to deter elephants when they have already entered the crop-field. In cases, where an early warning system exists, the situation can be controlled to an extent, as surprises are reduced. Thus, when the elephants enter the farm fields through anti-poaching camps located at the point of compartment no. 64 & 65 under Manpur Forest Range, the forest staff give an alert to the range office through radio-points. Patrolling parties are sent with fire- crackers, pipe guns and tractors to organize a squad of forest staff and villagers to drive elephants away from the crop fields. An illustration of the movements of elephants when they enter the Valmiki Tiger Reserve is shown below (Fig. 10). .

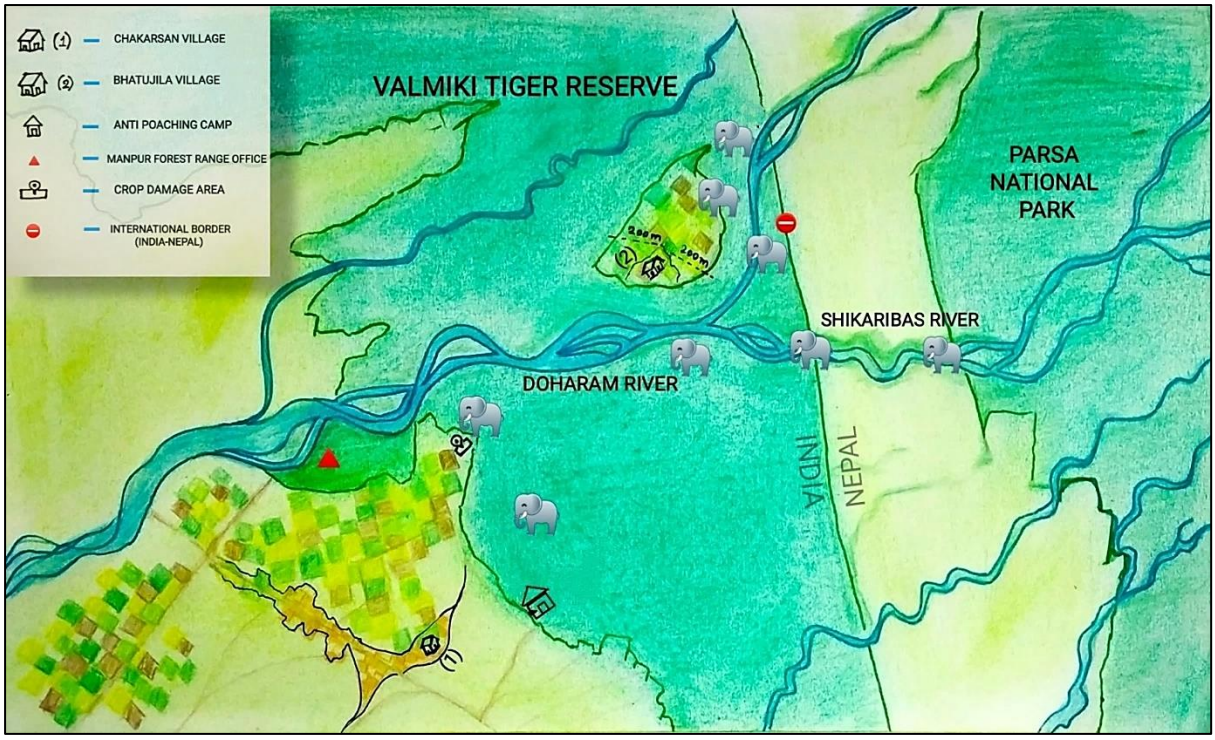

Fig. 10. *Elephant movement near the forest areas of Bhatujila and Chakarsen villages of Valmiki Tiger Reserve after crossing the India-Nepal border through the Shikaribas river*

Each time, the elephants are found to enter the crop fields before the forest staff reach the area. There is a lack of coordination between the measures taken by the land users to mitigate conflict on the one hand and government measures on the other. As a result, there is a great deal of mutual mistrust, and effective measures such as early warning systems, which require intensive coordination between all actors, have not yet been implemented effectively across the conflict-areas.

The respondents suggested to cover the crop fields adjacent to forest areas with solar fencing to prevent elephants from entering. A few farmers suggested growing mango orchards at the entry points and some of them have already planted these in and around their crop fields. Some villagers responded, mentioning the need of barbed-wire fencing to prevent wild animals entering the crop field and solar light for threat detection at night-time.

Cost effectiveness of the tools used:

Elephants come to raid the crops when they are mature enough in the months from October to December. As per the survey, respondents react to the situation of raids by elephants in three different ways (Fig.7). A cost estimation of the existing mitigation measures which are adopted to deter elephants from the crop fields, is provided below-

Existing tools	Requisites	Cost estimation (For one raid)	Cost estimation for 3 months (For migratory seasons)
Tractor+ Pipe gun+ Cracker+ Fire+ Flashlight (at night)	Diesel, Kerosene oil & Cracker	3000 INR	36,000 INR
Motorcycles+ beating tin	Petrol, tin, utensils	1000 INR	10,000 INR
Hooting	(Human noise)	(No cost)	

[Cracker- 150 INR for 10 pcs; Diesel (15-20 litres/day)- 100 INR per litre; Petrol (5 litres/day)- 104 per litre; Kerosene (2 litres/day)- 45 per litre]

The cost depends on the type of the elephant raid (number of elephants, duration of the raid etc.). The overall cost for implementation of existing deterrent tools is borne by the local people and the forest department. The forest department provides a lumpsum amount for crackers, diesel and petrol. Local farmers contribute around 10,000 INR to 16,000 INR. Generally, the overall cost ranges from 10,000 INR to 36,000 INR for 10 to12 elephant raids in the migratory season.

6. Recommendations:

Based on the primary surveys and literature, three categories of interventions can be identified for further recommendation- a. Pre-emptive measures, b. detection efforts, and c. fencing & trenches which can be designed and implemented to reduce elephant crop-raiding. Compensation programs exist but bureaucratic hurdles in the process prevent farmers obtaining the compensation within a particular time-frame.

The sustainability of interventions for reducing elephant crop-raiding, depends upon the willingness of affected farmers and communities to implement these techniques, which are likely to be site-specific. Thus, informed and empowered communities are crucial for human animal conflict mitigation. In this context, local community mobilisation and engagement through Elephant Protection Groups involving local stakeholders are the most effective way to achieve human wildlife conflict mitigation.

a. Pre-emptive measures: It has been observed that some of the attacks by elephants on humans can be attributed to risky human behaviours like attempts to drive elephants away by throwing stones, as well as the use of emergency shelters in the forests at night which

can be avoidable. These emergency shelters are used on ad-hoc basis mostly adopting natural hides while collecting NTFPs, fuelwoods etc.

Pre-emptive measures include providing education (Mumby and Plotnik, 2018) and outreach efforts relating to best conflict-mitigation practices. For example, plantation of crops which can be harvested before elephant migration season, storage of harvested crops far from the areas of possible elephant movements, planting unpalatable crops along the borderline between cropland and forest areas etc. These measures are low-cost and easy to implement with the help of Elephant Protection Group (EPG), however the last option has not been accepted well by the local communities as they continue to generate significant profit even after the financial loss due to elephant crop-raids in this region.

b. Detection Measures: As the entry points in the conflict villages are mostly identified by the forest staff and some local farmers; an EWS (Early Warning System) can be developed in collaboration with EPG and Forest Department. There are siren systems which can be installed in the strategic points of the villages to warn the villagers about elephant presence. Team patrolling can be done during the migratory seasons with Anti-deterrent Spray (ADS) for safety. Bee-sound box can also be used as a deterrent to elephants as and when they are detected. Furthermore, a collaborative network can be formed with the forest offices in Nepal to know the elephant movements for early detection. Thus, there exists scope of building good co-ordination between the Elephant Protection Groups (EPG) and the Forest Department to act collaboratively and more effectively, especially in the transboundary context.

c. Fencing and Trenches: Solar electric fencing has been adopted for management of the conflict situation by the concerned departments in different parts of the world. Solar fencing and trenches may not act as long-term deterrents due to high cost and poor maintenance (Palita and Purohit, 2008).

Chili peppers have been widely used and validated for efficacy across the globe, and in multiple forms. These include chili in the form of - cultivation of the plant; grease on fence lines; spray; and briquettes. Moreover, chilli can be used as chilli smog and chilli rope. It is believed that the fragrance of hot chili can act as both a repellent and deterrent (Le Bel et al. 2015; Karidozo and Osborn 2015) as olfaction is a key sense used by elephants while foraging (Plotnik and de Waal 2014; Schmitt et al. 2018). Chilli smoke can be created from the **chilli-dung-cake** (CDC) or the chilli torches where the main ingredients are hot chilli, cow dung and a bamboo container. The emerging smoke is mixed with fog and creates a chilli smog in the crop-fields from burning chili briquettes or chilli dung cakes in winter seasons. Wind direction is an important factor to be considered in this case. However, the application of chili peppers as an intervention must be implanted at community-level involving the local communities, especially the youth (Le Bel et al. 2015).

7. Conclusion:

The nature of human-wildlife conflict is site-specific and depends on type of habitat, corridor and socio-economic condition of the area. These factors can help us to identify appropriate measures to respond in an effective and correct way to minimise the negative impacts of conflict on both human and wildlife. Elephant Protection Groups have to be formed including the local communities to coordinate with concerned forest range offices. Most studies on best practice in human-wildlife conflict mitigation advocate the need to empower local communities and encourage them to take responsibility for preventive action (O'Connell et al. 2000; Jackson & Wangchuk 2001; Osborn & Parker 2003). Community-based conservation has also been projected as the most practical approach to stop biodiversity loss in developing countries (Mehta & Kellert 1998). This project titled "Development of cross-border approaches to mitigate conflicts between humans and elephants and to protect small farmers at the foot of the Himalayas" also works closely with the small and marginal farmers in the target villages to develop the most appropriate and beneficial alternative to reduce the loss due to crop-damage. Alternative livelihood options like honey production, homestay-ecotourism etc. with community participation and ownership can also help the situation. However, the Government, policy makers, experts, conservation practitioners, and local stakeholders need to build synergies nationally and internationally in their aims and coordinate their approaches to adopt a review and evaluation process to assess the impact of existing measures for human elephant conflict mitigation, learn lessons from cross border exchanges and implement successful measures to mitigate the negative interaction between elephants and humans, thus, protecting the small farmers in the Himalayan foothills and contributing to the conservation of Asian elephant and its habitat.

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ANNEXURE 1: Survey Questionnaire Form

Questions presented to villagers & forest staffs to assess the efficacy of the tools

(Survey Sheet) *date:*

Name of the Respondent (Tribal/Non - Tribal):

Means of livelihood: Monthly Income:

Revenue Village / Gram Sabha: Forest Range:

Land Assets (Bigha / Acre): Distance from the forest:

A. Which animals cause damage to your crops?

B. Can you control crop damage caused by elephants? (yes/no)

C. According to you, what help do you need from NGOs to protect the crops from elephants?

D. At present, give the details of the methods being adopted by the villagers for the protection of crops and the Effectivity (e.g., rate low/medium/high),
Answer -

Current methods	Effectiveness	Cost	Comment

E. Implemented Elephant deterrents which were abandoned/ failed and its cause

Answer -

Solution that has failed	for what reason	what should be done

F. About the success of the measures being taken by the Forest Department:
(Efficacy in low / medium / high)

pre- damage measures	efficacy

Post- damage measures	efficacy

G. What do you think can be effective tools as per you experience?

Villagers:

Annexure-2 *Evaluation of existing conflict mitigation approaches in Valmiki Tiger Reserve*

Part-1: Socio Economic data

Sl. No.	Collection Date	Village	Occupation	Land Type	Monthly Income (INR)
1	3/22/2021	Bhatujila	Farmer, Ward representative	Own Land	14000
2	3/22/2021	Bhatujila	Farmer, EDC Chief	Own Land	12000
3	3/22/2021	Purainiya	Farmer, Migrant worker	Own Land	14000
4	3/22/2021	Chakarsen	Farmer, Migrant worker	Own Land	8000
5	3/27/2021	Bhatujila	Farmer	Lease Land	7000
6	3/27/2021	Bhatujila	Farmer	Lease Land	10000
7	3/27/2021	Bhatujila	Farmer	Lease Land	5000
8	3/27/2021	Bhatujila	Farmer	Lease Land	6000
9	3/27/2021	Manpur	Farmer	Own Land	6000
10	3/27/2021	Bhatujila	Farmer, Migrant worker	Own Land	7000
11	4/4/2021	Bhatujila	Farmer, Migrant worker	Lease Land	5000
12	4/4/2021	Bhatujila	Farmer	Lease Land	5000
13	4/4/2021	Bhatujila	Farmer	Own Land	7000
14	4/4/2021	Bhatujila	Farmer, Migrant worker	Own Land	8000
15	4/4/2021	Bhatujila	Farmer	Own Land	5000
16	4/4/2021	Bhatujila	Farmer, Migrant worker	Own Land	10000
17	4/4/2021	Bhatujila	Farmer	Lease Land	5000
18	4/4/2021	Bhatujila	Farmer	Lease Land	5000
19	4/4/2021	Bhatujila	Farmer	Lease Land	5000
20	4/4/2021	Bhatujila	Farmer	Lease Land	8000
21	4/4/2021	Bhatujila	Farmer	Own Land	8000
22	4/4/2021	Bhatujila	Farmer, Migrant worker	Own Land	12000
23	4/4/2021	Bhatujila	Farmer	Lease Land	5000
24	4/4/2021	Bhatujila	Farmer	Lease Land	6000
25	4/4/2021	Bhatujila	Farmer	Own Land	8000
26	4/4/2021	Bhatujila	Farmer	Lease Land	6000
27	4/4/2021	Bhatujila	Farmer	Lease Land	6000
28	4/4/2021	Bhatujila	Farmer, Migrant worker	Lease Land	10000
29	4/4/2021	Bhatujila	Farmer	Lease Land	5000
30	4/4/2021	Bhatujila	Farmer	Own Land	5000
31	4/4/2021	Bhatujila	Farmer	Own Land	8000
32	4/4/2021	Bhatujila	Farmer	Own Land	5000
33	4/4/2021	Bhatujila	Farmer	Own Land	5000
34	4/4/2021	Bhatujila	Farmer	Own Land	7000
35	4/4/2021	Bhatujila	Farmer	Own Land	10000
36	4/4/2021	Bhatujila	Farmer	Own Land	5000
37	4/4/2021	Bhatujila	Farmer	Own Land	6000
38	4/4/2021	Bhatujila	Farmer	Lease Land	10000
39	4/4/2021	Bhatujila	Farmer	Own Land	10000
40	4/4/2021	Bhatujila	Farmer	Own Land	8000
41	4/4/2021	Bhatujila	Farmer, Migrant worker	Lease Land	10000
42	4/4/2021	Bhatujila	Farmer	Own Land	10000
43	4/4/2021	Bhatujila	Farmer	Lease Land	5000
44	4/4/2021	Bhatujila	Farmer	Own Land	6000
45	4/4/2021	Bhatujila	Farmer	Lease Land	7000
46	4/4/2021	Bhatujila	Farmer	Lease Land	7000
47	4/4/2021	Bhatujila	Farmer	Lease Land	8000
48	4/4/2021	Bhatujila	Farmer, Migrant worker	Own Land	10000
49	4/4/2021	Bhatujila	Farmer, Migrant worker	Own Land	10000
50	4/4/2021	Bhatujila	Farmer, Migrant worker	Own Land	10000
51	4/4/2021	Bhatujila	Farmer, Migrant worker	Own Land	10000
52	4/4/2021	Bhatujila	Farmer, Migrant worker	Own Land	10000
53	4/4/2021	Bhatujila	Farmer, Migrant worker	Own Land	10000
54	4/4/2021	Bhatujila	Farmer	Own Land	5000
55	4/4/2021	Bhatujila	Farmer	Own Land	8000
56	4/4/2021	Bhatujila	Farmer	Own Land	5000
57	4/4/2021	Bhatujila	Farmer, Jaggery seller	Own Land	12000
58	4/4/2021	Bhatujila	Farmer, Jaggery seller	Own Land	12000
59	4/4/2021	Bhatujila	Farmer, Migrant worker	Own Land	10000
60	4/4/2021	Bhatujila	Farmer, Migrant worker	Lease Land	10000
61	4/7/2021	Chakarsen	Farmer, EDC Chief	Own Land	10000
62	4/7/2021	Chakarsen	Farmer, Cement-Shop owner	Own Land	12000
63	4/7/2021	Chakarsen	Farmer, Migrant worker	Own Land	12000
64	4/7/2021	Manpur	Farmer, Migrant worker	Own Land	10000
65	4/7/2021	Manpur	Farmer, Migrant worker	Own Land	10000
66	4/7/2021	Purainiya	Farmer	Own Land	5000
67	4/7/2021	Chakarsen	Farmer	Own Land	7000
68	4/7/2021	Chakarsen	Farmer	Own Land	8000
69	4/11/2021	Chakarsen	Farmer. Migrant worker	Own Land	12000
70	4/11/2021	Chakarsen	Farmer, Migrant worker	Own Land	8000
71	4/11/2021	Chakarsen	Farmer, Migrant worker	Own Land	8000
72	4/11/2021	Chakarsen	Farmer, Migrant worker	Own Land	10000
73	4/11/2021	Chakarsen	Farmer	Own Land	10000
74	4/11/2021	Chakarsen	Farmer, Private teacher	Own Land	9000
75	4/11/2021	Chakarsen	Farmer, Shop owner	Own Land	8000
76	4/11/2021	Chakarsen	Farmer, Migrant worker	Own Land	13000
77	4/11/2021	Chakarsen	Farmer	Own Land	8000
78	4/11/2021	Chakarsen	Farmer	Own Land	10000
79	4/11/2021	Chakarsen	Farmer	Own Land	6000
80	4/13/2021	Bhatujila	Farmer	Lease Land	7000
81	4/13/2021	Bhatujila	Farmer	Own Land	8000
82	4/13/2021	Bhatujila	Farmer, Migrant worker	Own Land	10000
83	4/13/2021	Bhatujila	Farmer	Own Land	5000
84	4/13/2021	Bhatujila	Farmer	Own Land	6000
85	4/15/2021	Chakarsen	Farmer	Own Land	9000
86	4/16/2021	Purainiya	Farmer	Own Land	10000
87	4/25/2021	Purainiya	Farmer	Own Land	8000
88	4/15/2021	Purainiya	Farmer	Own Land	8000
89	4/21/2021	Chakarsen	Farmer	Own Land	8000
90	4/15/2021	Purainiya	Farmer	Own Land	8000
91	4/15/2021	Chakarsen	Farmer, Migrant worker	Own Land	9000
92	4/15/2021	Purainiya	Farmer	Own Land	8000
93	4/21/2021	Chakarsen	Farmer, Migrant worker	Own Land	12000
94	4/21/2021	Purainiya	Farmer	Own Land	8000
95	4/21/2021	Chakarsen	Farmer	Own Land	8000
96	4/21/2021	Purainiya	Farmer, Migrant worker	Own Land	9000
97	4/25/2021	Chakarsen	Farmer	Own Land	5000
98	4/25/2021	Purainiya	Farmer, Migrant worker	Own Land	10000
99	4/21/2021	Purainiya	Farmer, Migrant worker	Own Land	10000
100	4/21/2021	Chakarsen	Farmer	Own Land	8000
101	4/21/2021	Chakarsen	Farmer	Own Land	8000
102	4/21/2021	Chakarsen	Farmer	Own Land	8000
103	4/21/2021	Chakarsen	Farmer	Own Land	8000
104	4/21/2021	Purainiya	Farmer, Migrant worker	Lease Land	10000
105	4/21/2021	Purainiya	Farmer,Migrant worker	Own Land	10000
106	4/21/2021	Chakarsen	Farmer	Own Land	5000
107	4/21/2021	Gamhariya	Farmer	Own Land	8000
108	4/21/2021	Purainiya	Farmer	Own Land	6000

Annexure-2 *Evaluation of existing conflict mitigation approaches in Valmiki Tiger Reserve*

Part-2: Crop damage data

Sl. No.	Collection Date	Village	Crops planted	Maximum Damaged Crops	Damage by Elephants (%)	Animals who Damge Crops
1	3/22/2021	Bhatujila	Paddy, Sugarcane	Paddy, Sugarcane	10%	Elephant, Monkey, Spotted Deer
2	3/22/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane	20%	Elephant, Monkey, Spotted Deer
3	3/22/2021	Purainiya	Paddy, Sugarcane, Wheat	Paddy, Sugarcane	15%	Elephant,Monkey, Hog Deer
4	3/22/2021	Chakarsen	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	25%	Elephant, Monkey, Deer, Nilgai
5	3/27/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy,Sugarcane, Wheat	15%	Elephan, Monkey, Deer, Nilgai, Hog deer
6	3/27/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Monkey,Elephant Dear Hog deer
7	3/27/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	20%	Monkey,Elephant Dear Hog deer
8	3/27/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
9	3/27/2021	Manpur	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
10	3/27/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
11	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
12	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
13	4/4/2021	Bhatujila	Paddy, Wheat	Paddy,Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
14	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	25%	Elephant, Monkey, Nilgai, Spotted Deer
15	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
16	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	20%	Elephant, Monkey, Nilgai, Spotted Deer
17	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
18	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
19	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
20	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
21	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
22	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
23	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
24	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
25	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
26	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
27	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
28	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
29	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
30	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	20%	Elephant, Monkey, Nilgai, Spotted Deer
31	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	20%	Elephant, Monkey, Nilgai, Spotted Deer
32	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
33	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
34	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	25%	Elephant, Monkey, Nilgai, Spotted Deer
35	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
36	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Spotted Deer
37	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
38	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	20%	Elephant, Monkey, Nilgai, Spotted Deer
39	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	20%	Elephant, Monkey, Nilgai, Spotted Deer
40	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
41	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	20%	Elephant, Monkey, Nilgai, Spotted Deer
42	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
43	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
44	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
45	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
46	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
47	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
48	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	20%	Elephant, Monkey, Nilgai, Spotted Deer
49	4/4/2021	Bhatujila	Paddy,Sugarcane	Paddy, Sugarcane	20%	Elephant, Monkey, Nilgai, Spotted Deer
50	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	20%	Elephant, Monkey, Nilgai, Spotted Deer
51	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	25%	Elephant, Monkey, Nilgai, Spotted Deer
52	4/4/2021	Bhatujila	Paddy,Sugarcane	Paddy, Sugarcane	20%	Elephant, Monkey, Nilgai, Spotted Deer
53	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	15%	Elephant, Monkey, Nilgai, Spotted Deer
54	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
55	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	15%	Elephant, Monkey, Nilgai, Spotted Deer
56	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
57	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	15%	Elephant, Monkey, Nilgai, Spotted Deer
58	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	15%	Elephant, Monkey, Nilgai, Spotted Deer
59	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	15%	Elephant, Monkey, Nilgai, Spotted Deer
60	4/4/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	20%	Elephant, Monkey, Nilgai, Spotted Deer
61	4/7/2021	Chakarsen	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
62	4/7/2021	Chakarsen	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
63	4/7/2021	Chakarsen	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
64	4/7/2021	Manpur	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
65	4/7/2021	Manpur	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
66	4/7/2021	Purainiya	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
67	4/7/2021	Chakarsen	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	15%	Elephant, Monkey, Nilgai, Spotted Deer
68	4/7/2021	Chakarsen	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
69	4/11/2021	Chakarsen	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
70	4/11/2021	Chakarsen	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	30%	Elephant, Monkey, Nilgai, Spotted Deer
71	4/11/2021	Chakarsen	Sugarcane	Sugarcane	20%	Hog deer
72	4/11/2021	Chakarsen	Sugarcane	Sugarcane	15%	Elephant, Monkey, Nilgai, Spotted Deer
73	4/11/2021	Chakarsen	Sugarcane, Paddy	Sugarcane, Paddy	15%	Elephant, Monkey, Nilgai, Spotted Deer
74	4/11/2021	Chakarsen	Sugarcane, Paddy	Sugarcane, Paddy	5%	Elephant, Monkey, Nilgai, Spotted Deer
75	4/11/2021	Chakarsen	Sugarcane, Paddy	Sugarcane, Paddy	15%	Elephant, Monkey, Nilgai, Spotted Deer
76	4/11/2021	Chakarsen	Sugarcane, Paddy	Sugarcane, Paddy	15%	Elephant, Monkey, Nilgai, Spotted Deer
77	4/11/2021	Chakarsen	Paddy, Sugarcane, Wheat	Sugarcane, Paddy, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
78	4/11/2021	Chakarsen	Sugarcane, Paddy	Sugarcane, Paddy	5%	Elephant, Monkey, Nilgai, Spotted Deer
79	4/11/2021	Chakarsen	Sugarcane	Sugarcane	5%	Elephant, Monkey, Nilgai, Spotted Deer
80	4/13/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
81	4/13/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
82	4/13/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
83	4/13/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
84	4/13/2021	Bhatujila	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
85	4/15/2021	Chakarsen	Sugarcane	Sugarcane	15%	Elephant, Monkey, Nilgai, Spotted Deer
86	4/16/2021	Purainiya	Sugarcane	Sugarcane	20%	Elephant, Monkey, Nilgai, Spotted Deer
87	4/25/2021	Purainiya	Paddy, Sugarcane, Wheat	Paddy, Sugarcane, Wheat	10%	Elephant, Monkey, Nilgai, Spotted Deer
88	4/15/2021	Purainiya	Sugarcane	Sugarcane	15%	Elephant, Monkey, Nilgai, Spotted Deer
89	4/21/2021	Chakarsen	Sugarcane	Sugarcane	5%	Elephant, Monkey, Nilgai, Spotted Deer
90	4/15/2021	Purainiya	Sugarcane	Sugarcane	5%	Elephant, Monkey, Nilgai, Spotted Deer
91	4/15/2021	Chakarsen	Sugarcane, Paddy	Sugarcane, Paddy	5%	Elephant, Monkey, Nilgai, Spotted Deer
92	4/15/2021	Purainiya	Sugarcane	Sugarcane	5%	Elephant, Monkey, Nilgai, Spotted Deer
93	4/21/2021	Chakarsen	Sugarcane	Sugarcane	5%	Elephant, Monkey, Nilgai, Spotted Deer
94	4/21/2021	Purainiya	Sugarcane, Paddy, Wheat	Sugarcane	5%	Elephant, Monkey, Nilgai, Spotted Deer
95	4/21/2021	Chakarsen	Sugarcane	Sugarcane	5%	Elephant, Monkey, Nilgai, Spotted Deer
96	4/21/2021	Purainiya	Sugarcane	Sugarcane	5%	Elephant, Monkey, Nilgai, Spotted Deer
97	4/25/2021	Chakarsen	Sugarcane, Paddy, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
98	4/25/2021	Purainiya	Sugarcane, Paddy, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
99	4/21/2021	Purainiya	Sugarcane, Paddy, Wheat	Paddy, Sugarcane, Wheat	25%	Elephant, Monkey, Nilgai, Spotted Deer
100	4/21/2021	Chakarsen	Sugarcane	Sugarcane	5%	Elephant, Monkey, Nilgai, Spotted Deer
101	4/21/2021	Chakarsen	Sugarcane	Sugarcane	5%	Elephant, Monkey, Nilgai, Spotted Deer
102	4/21/2021	Chakarsen	Sugarcane	Sugarcane	5%	Elephant, Monkey, Nilgai, Spotted Deer
103	4/21/2021	Chakarsen	Sugarcane	Sugarcane	5%	Elephant, Monkey, Nilgai, Spotted Deer
104	4/21/2021	Purainiya	Sugarcane	Sugarcane	5%	Elephant, Monkey, Nilgai, Spotted Deer
105	4/21/2021	Purainiya	Sugarcane, Paddy, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
106	4/21/2021	Chakarsen	Sugarcane, Paddy, Wheat	Paddy, Sugarcane, Wheat	5%	Elephant, Monkey, Nilgai, Spotted Deer
107	4/21/2021	Gamhariya	Sugarcane	Sugarcane	20%	Elephant, Monkey, Nilgai, Spotted Deer
108	4/21/2021	Purainiya	Paddy, Sugarcane	Paddy, Sugarcane	5%	Elephant, Monkey, Nilgai, Spotted Deer

Annexure-2 *Evaluation of existing conflict mitigation approaches in Valmiki Tiger Reserve*

Part-3: Existing Deterrents data

Sl. No.	Collection Date	Village	Tools used by the Villagers and its Efficiency							
			Tractor	Motorcycle	Pipe Gun	Hooting	Beating Tin	Fire	Crackers	Flash Light
1	3/22/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
2	3/22/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
3	3/22/2021	Purainiya	High	Medium	High	Low	Medium	High	High	High
4	3/22/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
5	3/27/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
6	3/27/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
7	3/27/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
8	3/27/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
9	3/27/2021	Manpur	High	Medium	High	Low	Medium	High	High	High
10	3/27/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
11	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
12	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
13	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
14	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
15	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
16	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
17	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
18	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
19	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
20	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
21	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
22	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
23	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
24	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
25	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
26	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
27	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
28	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
29	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
30	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
31	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
32	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
33	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
34	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
35	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
36	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
37	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
38	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
39	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
40	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
41	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
42	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
43	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
44	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
45	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
46	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
47	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
48	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
49	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
50	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
51	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
52	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
53	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
54	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
55	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
56	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
57	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
58	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
59	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
60	4/4/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
61	4/7/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
62	4/7/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
63	4/7/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
64	4/7/2021	Manpur	High	Medium	High	Low	Medium	High	High	High
65	4/7/2021	Manpur	High	Medium	High	Low	Medium	High	High	High
66	4/7/2021	Purainiya	High	Medium	High	Low	Medium	High	High	High
67	4/7/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
68	4/7/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
69	4/11/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
70	4/11/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
71	4/11/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
72	4/11/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
73	4/11/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
74	4/11/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
75	4/11/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
76	4/11/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
77	4/11/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
78	4/11/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
79	4/11/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
80	4/13/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
81	4/13/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
82	4/13/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
83	4/13/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
84	4/13/2021	Bhatujila	High	Medium	High	Low	Medium	High	High	High
85	4/15/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
86	4/16/2021	Purainiya	High	Medium	High	Low	Medium	High	High	High
87	4/25/2021	Purainiya	High	Medium	High	Low	Medium	High	High	High
88	4/15/2021	Purainiya	High	Medium	High	Low	Medium	High	High	High
89	4/21/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
90	4/15/2021	Purainiya	High	Medium	High	Low	Medium	High	High	High
91	4/15/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
92	4/15/2021	Purainiya	High	Medium	High	Low	Medium	High	High	High
93	4/21/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
94	4/21/2021	Purainiya	High	Medium	High	Low	Medium	High	High	High
95	4/21/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
96	4/21/2021	Purainiya	High	Medium	High	Low	Medium	High	High	High
97	4/25/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
98	4/25/2021	Purainiya	High	Medium	High	Low	Medium	High	High	High
99	4/21/2021	Purainiya	High	Medium	High	Low	Medium	High	High	High
100	4/21/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
101	4/21/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
102	4/21/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
103	4/21/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
104	4/21/2021	Purainiya	High	Medium	High	Low	Medium	High	High	High
105	4/21/2021	Purainiya	High	Medium	High	Low	Medium	High	High	High
106	4/21/2021	Chakarsen	High	Medium	High	Low	Medium	High	High	High
107	4/21/2021	Gamhariya	High	Medium	High	Low	Medium	High	High	High
108	4/21/2021	Purainiya	High	Medium	High	Low	Medium	High	High	High