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EFFECT OF LAKSHADIGANA TAILA ON WOUND HEALING IN ALBINO RAT

PUSHPA GOND*, RAGINI TILAK**, LAKSHMAN SINGH***, MOHAN KUMAR**** AND V.K SHUKLA*****

Declaration

The Declaration of the authors for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: We, *Pushpa Gond, Ragini Tilak, Lakshman Singh, Mohan Kumar and V.K Shukla* the authors of the research paper entitled EFFECT OF LAKSHADIGANA TAILA ON WOUND HEALING IN ALBINO RAT declare that, We take the responsibility of the content and material of our paper as We ourself have written it and also have read the manuscript of our paper carefully. Also, We hereby give our consent to publish our paper in Anvikshiki journal, This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else. We authorise the Editorial Board of the Journal to modify and edit the manuscript. We also give our consent to the Editor of Anvikshiki Journal to own the copyright of our research paper.

Abstract

Objective: To investigate the wound-healing potency of the *Lakshadi Gana Taila* on the excisional wound healing process in experimental study of albino rats, in comparison to 5% Povidone Iodine Solution and untreated group.

Material and Methods: Albino rats of either sex weighing between 200-250 gm were divided randomly into three groups (n=6). The animals were anaesthetized with anesthetic agent Thiopentone Sodium 25 mg/Kg Intra peritoneal. The skin of Albino rats was saved on one side of paravertebral region. The skin was disinfected using cotton and alcohol wipes. Excisional wound, full thickness skin wounds of diameter 10 mm were created in the paravertebral area. The following medications were applied topically to the wound once daily for a maximum of 16 days. In Group I (Trial Group) *Lakshadi Gana Taila* were applied on rats, In Group II (Positive control), 5% Povidone Iodine solution were applied on rats and Group III (Negative control) served as untreated. Wound was measured on days 0, 4, 8, 12 and 16 of the experiment and histopathological of H & E stain study done on day 4 and 8, 12 and 16. Statistical analysis was done using analysis of One Way ANOVA followed by Post Hoc Test and $P < 0.05$ was considered significant and < 0.001 highly significant.

Result: Area of wound was measured in all three groups at different interval and found that the rate of wound contraction was statistically highly significant in all groups ($p < 0.001$). Rate of wound contraction faster in Group I than Group II & III.

Conclusion: In the present study, topical application of *Lakshadi Gan Taila* accelerated healing of excisional wound in albino rats.

Keywords: Lakshadi Gana Taila, wound healing.

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Introduction

A wound is a break in the integrity of the skin or tissue often, which may be associated with disruption of the structure and function.¹ Wound repair, is the effort of injured tissue to restore their normal function and structural integrity after injury. All wounds undergo the basic step: Inflammatory phase, proliferative phase, epithelisation and maturational phase. Acute wounds proceed in an orderly and timely reparative process to achieve sustained restoration of structure and function. A chronic wound, in contrast, does not proceed to restoration of functional integrity. It is stalled in the inflammatory phase as a result of a variety of causes and does not proceed to closure.²

There are many factors that inhibit wound healing like Infection, Ischemia, Diabetes mellitus, Ionizing Radiation, advanced age, malnutrition, vitamin deficiencies, mineral deficiencies, etc.³ Wound dressing protect the wound from contaminating bacteria by providing surface coverage. There are a number of wound dressings in the market which have to be used according to the condition of the wound and the phases of the wound healing⁴. The idea of developing modern dressings is to manipulate the wound environment in purposeful ways. The enormous array of products available in the market today makes selection of the most appropriate dressing for any wound a very difficult task. However, the basic principles of wound management should not be ignored and these therapeutic modalities should not be used as a panacea to wounds, which can lead to disasters⁵. In this way, still there is need of good wound dressing material which may be promoted wound healing and not harmful to healthy cells.

The present study was conducted to evaluate the effect of *Lakshadi Gana Taila* on the wound healing process.

Material

Preparation of Drug (Lakshadi Gana Taila): Identified and purified ingredients *Laksha* (Resins of insect origin) (*Laccifer lacca*), *Nimba* leaves (*Azadirachta indica*), rhizome of *Haridra* (*Curcuma longa*) and pulp of *Amalatas* (*Cassia fistula*) of *Lakshadi Gana Taila* was prepared according description as classical method *Sneha pak kalpana* (*Kalka*, *Sneha* (*Til Tail-Sesamum indicum*) and *Kwath-Ratio 1:6:24*) according to *Sharangadhar Samhita Madhyam Khand 9/6* and *madhyam pak* used according to *Sushruta chikitsasthan 31/ 8-12* & *Lakshadi Gana Taila* was kept in air tight container.

Gas Chromatography Mass Spectrometry (GCMS) Identification of *Lakshadi Gana Taila* done to know the compound present in *Lakshadi Gana Taila*.

Methodology

The experimental protocol was approved by the Institutional Ethical Committee, Banaras Hindu University, Varanasi, India.

Evaluation of the role of *Lakshadi Gana Taila* in the healing of wound was done by assessment of certain parameters as- Measurement of wound area at different intervals as 0th day, 4th day, 8th day, 12th day and 16th day with help of transparent wax paper and graph paper and Mean area (sq. cm %) wound contraction among Group I, II & III (n=6) at different phases of day. Histopathological study was done at different interval of treatment as day- 4th day, 8th day 12th and 16th day.

Animals

Albino rats of either sex weighing between 200-250 gm were used for study. Animals were housed in separate polypropylene cages (one animals per cage), with tap water and commercial food *ad libitum*.

Method of developing an wound

Albino rats were anaesthetized by anesthetic agent Thiopentone sodium 25 mg/Kg intraperitoneal. The skin of Albino rats was saved on one side of paravertebral region. Wound was made by excisional wound method. The surgical procedures for wound formation were performed under aseptic conditions. A circular symmetrical (Diameter 1 Cm) cutaneous wound was made by careful sharp dissection of the skin, removing the underlying panniculus carnosus in 18 rats. After that, the effect of *Lakshadi Gana Tail* was evaluated in these open cutaneous wound. These wound model was divided into three groups each group have 6 albino rats.

- Group I Treated group (Treated by *Lakshadi Gana Tail*) as a local application.
- Group II Positive Control (Treated by Povidone Iodine (5%) as a local application.
- Group III Negative Control or Untreated Group (Without treatment)

Measurement of Area of wound contraction

Wounded area was traced on transparent wax paper with sharp pencil; the traced area was measured with the help of graph paper (mm²).

$$\text{Wound contraction}^6 (\%) = \frac{\text{Initial wound size} - \text{Specific day wound size}}{\text{Initial Wound size}} \times 100$$

Statistical Analysis

Data were analyzed using SPSS version 16. Statistical analysis was done using analysis of within the group comparison Student paired t- test, for between the group comparison One Way ANOVA followed by Post Hoc Test performed. $p < 0.05$ was considered significant < 0.001 was considered highly significant.

Observation and Result

GC-MS Identification of *Lakshadi Gana Taila* shows that here is 14 compounds were present out of which 5 new compounds detected. These 9 compounds are – Tetradecane, Heptadecane, 2-Methyl Pentadecane, Hexadecane, 2, 6, 10- Trimethyl Dodecane, Heneicosane, Octadecane, Octacosane and Squalene.

T A B L E No. 1 Mean Surface Area of wound (sq.cm) at different days among Group I, II and III (n=6):

Groups	SA					Within The Group Comparison Paired t- Test. 0-16 th Day
	Mean ± SD					
	0 th Day	4 th day	8 th day	12 th Day	16 th Day	
I	1.00±0.02	0.70±0.01	0.32±0.04	0.13 ±0.01	0.09 ± 0.01	0.91 ± 0.018, t = 119.80, p < 0.001
II	0.99±0.01	0.69±0.01	0.37±0.03	0.19±0.01	0.14 ± 0.01	0.85 ± 0.017, t = 121.11, p < 0.001

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III	1.00 ±0.02	0.68±0.01	0.42 ±0.05	0.22±0.02	0.18 ± 0.02	0.82 ± 0.030,t = 66.29, p < 0.001
Between the group comparis-on	F = 0.330 P = 0.724	F = 11.91 P=0.001 H.S.	F = 8.516 P < 0.003 H.S.	F = 52.593 P < 0.003 H.S.	F = 40.655 P < 0.001	
One way ANOVA						
Post Hoc test						
Group I Vs II	-	P = 0.046	P = 0.160	P < 0.001	P <0.001	
Group I Vs III	-	P=0.001	P = 0.003	P < 0.001	P < 0.001	
Group II Vs III	-	P=0.150	P = 0.182	P < 0.009	P < 0.014	

Rate of wound contraction was faster in Group I than Group II by observing mean except 4th day and statistically highly significant at 12th (p<0.001) and 16th day (p<0.001). Rate of wound contraction was faster in Group I than Group III at every observed day except 4th day and statistically highly significant at 8th (p=0.003), 12th (p<0.001) and 16th day (p<0.001). Rate of wound contraction was faster in Group II than III at the 12th and 16th day and statistically significant (p=0.009, p=0.014). Within the group improvement of surface area was statistically highly significant (p<0.001) in all groups. Finally by comparing all three groups, Group I showed higher rate of wound contraction. (Table No. 1).

T A B L E No. 2 Mean area (sq. cm %) contraction among Group I, II & III (n=6) at different phases of day:

Days	Group I		Group II		Group III	
	Mean	Changed %	Mean	Changed %	Mean	Changed %
0-4	0.30 ± .01 t=35.8,p <0.001	30.00%	0.30 ± 0.02 t=36.02, p<0.001	30.3%	0.32± 0 .03 t=25.47,p < 0.001	32.00%
4-8	0.38 ± 0.04, t=21.94,p<0.001	54.29%	0.32 ± 0.03 t =26.782,p<0.001	46.38%	0.26 ± 0.05 t=12.56,P<0.001	38.23%
8-12	0.19 ± 0.03, t=15.34,p<0.001	59.38%	0.18 ± 0.03, t=13.04,p<0 .001	48.65%	0.20 ±0.05, t=13.28, p<0.001	47.62%
12-16	0.04 ± 0 .005, t=22.136,P < 0.001	30.77%	0.05 ± 0.007, t=15.757, p < 0.001	26.32%	0.04 ± 0.01, t=7.593,p=0.001	18.18%

At the different phases among the Group I, II and III, maximum rate of wound contraction in Group I was 59.38% at 8-12 days while maximum rate of wound contraction in Group II & III were 48.65% and 47.62% respectively. Rate of wound contraction was higher in Group I than II & III at every interval except 0-4 days. (Table No. 2)

T A B L E No. 3 Histopathological finding in all three Groups:

Groups	4 th day	8th day	12 th day	16 th day
I	Necrosis, acute Inflammatory cells infiltrate, Initiation of Granulation tissue.	Less inflammatory cells, Marked Granulation Tissue.	Initiation of fibrosis, Healthy granulation tissue, few inflammatory cells.	Fibrocollagenous Tissue (Complete epithelisation), Inflammatory cells absent.

II	Marked Necrosis, Marked Acute Inflammatory cells.	Necrosis, More Neutrophil cells, Less Granulation tissue.	Less number of inflammatory cells, Granulation tissue.	Initiation of fibrosis, Few inflammatory cells, Blood vessels, Granulation tissue.
III	Marked necrosis, Marked Acute Inflammatory cells.	Necrosis present, More Inflammatory infiltrate, Less Granulation tissue present	Less number of inflammatory cells, Granulation tissue.	Initiation of fibrosis, Less number of inflammatory cells, Granulation tissue.

Discussion

Wound healing is a complex, dynamic and well orchestrated process which has overlapping but distinct phases to promote tissue repair. The phases of wound healing entails hemostasis, inflammation, migration, proliferation and remodeling. There are various cell to cell and cell to matrix interactions which influence the various phases in bringing restorative repair.⁷

In present study wound healing property of *Lakshadi Gana Taila* was evaluated in excisional wound model as an experimental study. There are fourteen compounds like Tetradecane, Heptadecane etc in *Lakshadi Gana Taila* which has noticed in G.C.M.S. Identification procedure. This study showed that *Lakshadi Gana Taila* was able to increase the rate of wound healing comparison to Povidone Iodine and Untreated group.

The histopathological study revealed that there was significant reduction in inflammatory cells with active granulation formation appeared from 4th day and collagen fibres started from 8th day of wound in *Lakshadi Gana Taila* group. Whereas in Povidone Iodine and Untreated group, there was marked number of inflamed cells from 4th day to 8th day. Fibroblastic cells proliferation also earlier in *Lakshadi Gana Taila* than Povidone Iodine & Untreated group. There are no marked differences found on comparing Povidone Iodine group (Group II) and untreated group (Group III).

Probable Mode of Action of Drug

This is perhaps due to the *madhur rasa* of *Amaltas* and *Kashaya*, *Tikta*, *Madhura Rasa* of *Laksha*. Because these *rasa* is called *Saumya Rasa* and It pacifies *Pitta*. It is mentioned as *Vranaropaka* (Having wound healing properties). *Nimba*, *Haidra* and *Amaltas* is having properties like *Vranashodhana* (Having Wound debriding properties) and *Ropana* (wound healing properties).^{8,9,10} Oil prepared by *Haridra* is indicated for healing of wound.¹¹ It has been clearly described already that *Lakshadi Gana* drugs have properties of *Dushtavranavishodhana* (wound debridement).¹² *Azadirachta indica* leaves having analgesic, anti-inflammatory and antipyretic effect¹³, *Curcuma longa* acts as anti inflammatory agent and increases angiogenesis.¹⁴, pulp of *Cassia fistula* shows improved tissue regeneration and anti-inflammatory effect¹⁵.

This drug content's properties described already for wound healing and it's proven in present study too. Thus, this *Lakshadigana Taila* (Ayurvedic formulation) acts as a good wound healing promoter..

Conclusion

Lakshadi Gana Taila when applied topically promotes the healing of wound and improves wound contraction and the effects were distinctly visible starting after treatment. With all above properties, this *Lakshadi Gana Taila* becomes more effective medicament in local application as dressing in wound.

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CONCEPT OF INFECTED WOUND (DUSHTA VRANA) IN AYURVEDA

PUSHPA GOND* AND LAKSHMAN SINGH**

Declaration

The Declaration of the authors for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: We, *Pushpa Gond and Lakshman Singh* the authors of the research paper entitled CONCEPT OF INFECTED WOUND (DUSHTA VRANA) IN AYURVEDA declare that , We take the responsibility of the content and material of our paper as We ourself have written it and also have read the manuscript of our paper carefully. Also, We hereby give our consent to publish our paper in Anvikshiki journal , This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else.We authorise the Editorial Board of the Journal to modify and edit the manuscript. We also give our consent to the Editor of Anvikshiki Journal to own the copyright of our research paper.

Abstract

As man is superior most creatures of God and having a sufficient intellectual mind to discover new things and concurrently overcome the existing problems. So from very ancient time the different methods of wound care had been described. Wound is a separation or break in continuity of skin, mucous membrane or tissue caused by physical, chemical or biological insult. Wound infections continue to represent a major medical problem, both in terms of how they affect the outcome of surgical procedures and for their impact on the length of hospital stay and medical costs. In Ayurveda, infected wound may be co-related with Dushta Vrana. Sushruta has explained that "Vrana"(wound) is so called as it covers the site and the scar, even after healing, does not disappear till the person lives. Proper wound care is necessary to prevent infection and to promote healing of the wound. In this article, emphasis has been given to Dushta Vrana and its management description according to Samhita and tried to explained Infected wound according to modern concept.

Keywords: Vrana, Infected wound, Dushta Vrana.

Introduction

A wound is a break in the integrity of the skin or tissue often, which may be associated with disruption of the structure and function.¹ Wound healing is the body response to injury in an attempt to restore normal structure and function. The wound healing process can be divided into three phases:1. Inflammatory (Reactive) phase. 2. Proliferative (Reparative phase).3. Maturation Phase (Remodeling) Phase. Wound healing is a dynamic process and all the three phases may occur simultaneously.² It is

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may be divided as: according to length of time 1.-Acute <6 week and 2. Chronic wound >6 week.³ Majority of skin lesions are called wounds and primarily are divided into acute and chronic, the difference being the time period during which they have been in existence and/or their tendency to heal properly or not.⁴

Vrana

“*Vrana Gatravichurne, Vranayatei Vranah*” (Su.S. Chi.1/6)

“*Gatra*” means Body (body tissue or part of body). “*Vichurnane*” means destruction, break, rupture and discontinuity (of the body or tissue). “The destruction / break / rupture / discontinuity of body/ tissue / part of body, is called “*Vrana*.”⁵

Sushruta has explained that “the scars of a wound never disappear even after complete healing and its imprint persists lifelong and it is called *Vrana* by the wise”.⁶ Vagbhat gave a beautiful definition of *Vrana* ie; *Vrana* makes the person pray (to God) till his life exists” or “that which exposes the interior of the body”.⁷ It is of two types-1.*Nija* (Organic)- is born from the *Doshas* and *Agantu* (Traumatic)- caused by sharp weapons, implements, stone, baton, nails , teeth, horns , poisons, *aruskara* etc. Even this (*Agantu vrana*) when gets vitiated by *Vata* and other *Dosha* becomes a *Nija Vrana*. Again, he described types of *Vrana* is of two kinds: *Dushta* (vitiating) and *Suddha* (Non-Vitiating); *Dushta* means getting vitiated by the *Doshas*.

Infected Chronic Wound

These chronic wounds may also be considered infectious .Chronic wounds are those which do not respond to treatment and/or demands of treatment are beyond the patient’s health, tolerance or stamina or alternatively any wound lasting for more than six weeks.⁸

A biofilm is an aggregate of multiple microorganisms (polymicrobial), adherent to each other on a surface and embedded within a self –produced carbohydrate and protein matrix of extracellular polymeric substance or exopolysaccharide. Biofilms account for more than 80% of all microbial infections of the human body. In context to human infection, biofilms are an integral part of chronic wounds, but are uncommon in acute wounds. They have been identified as one of the main variables responsible for resistant infection or recurrence of a seemingly cured infection. The site of attachment and formation of the biofilm includes wound surface, dressings, sutures etc. Some of the important surgical site infection and chronic soft tissue infection etc. The protective nature of the biofilm structure makes the bacteria embedded within them remarkably difficult to treat with antimicrobials.⁹ The effects of bacteria in a wound are often described as a continuum which extends from contamination (the presence of bacteria without problems), to Colonization (the presence of multiplying bacteria), to infection with tissue invasion. Infection may be localized to the wound, spread into nearby tissues, or cause systemic illness such as systemic inflammatory response syndrome (SIRS) or multiple organ dysfunction (MODS). The classical signs of local infection are pain, heat, swelling, redness and loss of function, and may be accompanied by purulent discharge, pyrexia and malodour. However in chronic wounds, the patient often has comorbidities that suppress the signs of inflammation. As a result identifying infection in chronic wounds may be difficult and clinicians need to rely on other signs and symptoms (Table-1).¹⁰

TABLE 1 Signs and symptoms of localized, spreading and systemic infection in wounds

<i>Localised Infection</i>	<i>Spreading infection</i>
Acute Wounds eg; surgical or traumatic wounds, burns	
<ul style="list-style-type: none"> • <i>Classical signs and symptoms:</i> • New or increasing pain • Erythema • Local Warmth • Swelling • Purulent Discharge • Pyrexia • Delayed or stalled healing • Abscess • Malodour 	<ul style="list-style-type: none"> As for localised infection, plus • Further extension of erythema • Lymphangitis • Crepitus in soft tissues • Wound dehiscence
Chronic Wounds e.g., Diabetic foot ulcers, venous leg ulcers, arterial leg/foot ulcers, pressure ulcers	
<ul style="list-style-type: none"> • New, increased or altered pain • Delayed (or Stalled) healing • Periwound oedema • Bleeding or friable granulation tissue • Distinctive malodour or change in odour • Wound bed discolouration • Increased, altered or purulent exudates • Induration • Pocketing or bridging 	<ul style="list-style-type: none"> As for localized chronic infection, plus: • Wound dehiscence • Erythema extending from the wound edge • Crepitus, warmth, induration or discolouration spreading into periwound area • Lymphangitis • Malaise or non-specific deterioration in the patient's general condition
<i>Systemic Infection</i>	
<i>Sepsis:</i> Documented infection with pyrexia or hypothermia, tachycardia, tachypnoea, raised or depressed white blood cell count	
<i>Severe Sepsis:</i> sepsis and multiple organ dysfunctions.	

Dushta Vrana

The word *Dushta* literally means putrified ulcers. The wound that has got vitiated.¹¹ The muscular tissues are afflicted with sensitization (*Praharsha*) and scatteredness/ disintegration of the blood (*Rudhiramvikira*) basically cause severe kind of *Dushta Vrana*.¹²

According to Charaka, *Vrana* which produces foul smell, have lost their normal color, produces excessive discharge with excessive pain are *Dusta Vrana*. According to Acharya Madhava, *Dushta Vrana* are chronic in nature, elevated from the surface, discharges pus and impure blood with foul smell and have opposite characters of *Suddha Vrana*.¹³

Causes of Dushta Vrana

1. Improper dressing
2. Infected ward or dressing material
3. Intake of contraindicated diet such as new paddy, pea, green leafy vegetables, yoghurt, milk, butter milk
4. Intake of alcohol
5. Flies

6. Contact of *Vrana* with draughts, hot sun, dust, smokes, dew etc
7. Improper nutrition
8. Contact with 'Harmful organisms' due to unhygienic conditions.¹⁴

Types of Dushta Vrana

Sushruta classified *Dushta Vrana* on the basis of involvement of *Doshas*. He mentioned that on basis of severity of *Doshas*, *Dushta Vrana* divided into six types¹⁵ -*Vataja*, *Pittaja*, *Kaphaja*, *Raktaja*, *Sannipataja*, and *Agantuja*. According to *Bhela Samhita* –there are twelve blemishes of the wounds; their examination is of six kinds and the procedures of treatment thirty six as far as they are determined for the purposes of surgical treatment.¹⁶ Apart from this, *Charaka* classified *Dushta Vrana* on the basis of clinical features into 12 categories mentioned below in (Table-2):¹⁷

T A B L E 2 *Types of Dushta Vrana*

Sr.No.	Type	Clinical feature
1	<i>Shweta</i>	Paleness of ulcer
2	<i>Avasanna Vartma</i>	Depressed margin of ulcer
3	<i>Ati Sthula Vartma</i>	Thick margins of ulcer
4	<i>Ati pinjara</i>	Very reddish yellow mixed coloration of ulcers.
5	<i>Nila</i>	Blue coloration of ulcer.
6	<i>Shyava</i>	Blackish brown colour floor
7	<i>Ati pidika</i>	Excessive blisters on and around <i>Vrana</i>
8	<i>Rakta</i>	Red coloured floor
9	<i>Krishna</i>	Black coloured floor
10	<i>Ati putika</i>	Excessive putrifaction
11	<i>Ropya</i>	Recurrence due to deep seated vitiated <i>Doshas</i>
12	<i>Kumbhimukha</i>	<i>Vrana</i> with narrow external opening and wide base like a jar

Clinical Features of Dushta Vrana

Sushruta described about *Dushta Vrana* in detail. According to him -Excessively narrow or wide mouth, Too Hard or Too soft *Vrana*, elevation of floor or depressed floor, Too cold or Too hot, having one of the colours-black, red, yellow, white colour, Frightful, Full of Foetid pus, muscles, vessels, ligaments etc, discharging foetid pus, moving in oblique track, having deep base, with ugly sight and foul smell, severely painful; associates with heat, suppuration, redness, itching, swelling and boils' excessively discharging vitiated blood and long lasting-these are features of vitiated ulcer.¹⁸

The Factors Responsible for Healing of Wounds According to Ayurveda

Sushruta described about factors i.e; Wound are easily curable in patients who are youthful, strong, full of vitality and with tolerant psyche or in a single person who has all these four qualities, the wounds are curable in easiest way. There, in youthful persons due to fresh (developing) tissues, wounds heal up rapidly; in strong persons, because of firm and profuse musculature, applied sharp instruments do not touch vessels, ligaments etc.; in those having high vitality pin, injury, dietic restrictions etc. do not produce malaise and in those having high vitality pain, injury, dietic restrictions etc. do not produce malaise and in those having tolerant psyche no pain is felt even by harsh operations. Hence in such persons, wounds are easily curable.¹⁹ Wounds of those suffering from leprosy, poison, consumption and diabetes are cured with difficulty and also of those who have wounds over wounds.²⁰

Management

Although much progress has been made in management of wound in past few years, management of *Vrana* have been remaining significant health related issue ever since period of *Sushruta*. He described even about wounded person that should live in a house architecturally commendable, clean, and free from the sun and wind.²¹

Again Sushruta described about precautions which should be taken like-One should avoid disturbing agents like excessive exposure to wind, the sun, dust, smoke, dew, excessive eating, undesirable food, sound and sight; envy, wrath, fear, grief, anxiety, awaking in night, irregular eating and sleeping, fasting, speaking, exercise, standing, walking, cold wind, incompatible food, eating when previous meal is not digested, indigestion, fly etc.²² There are number of procedures performed for various steps of healing of *Vrana*. Among these, *shuddha Vrana* is been treated by *Ropana* remedies, whereas *Dushta Vrana* is managed on the basis of involvement of vitiated *Doshas*, site of *Vrana*, excessive putrifaction, and inflammatory changes. *Sushruta* described sixty different types of management of *Vrana* in general. Of them, decoction, wick, paste, ghee, oil, semisolid extract and dusting powder-these are both for cleansing and healing procedures described by Sushruta.²³

Conclusion

In this way, *Vrana* is an important issue of *Shalya Tantra* due to its involvement in many surgical conditions and *Ayurveda* gives message that how to check disease causative factors and what should do when the person become diseased too. Sushruta the father of Indian surgery has scientifically classified in a systemic manner a wealth of clinical material and the principles of management which are valid even today. Description of *Vrana* is one of the very important area covered by him. For which only he has dedicated eight chapters in his *Samhita Grantha*. A broad classification of *Vrana*, *Shuddha Vrana*, *Nadi Vrana*, *Sadhya Vrana*, *Dagdha Vrana* etc. and their management in the form of sixty *Upakramas* which are from *Apatarpana* to *Rakshavidhana* are given in the text. There are many factors which responsible for resulting in delay wound healing like diabetes, anemia and the infection is one of these. So, infection in wound delays the healing of wound stages and produce a chronic wound. Infected wound may be correlated to *Dushta Vrana*. In ancient time Sushruta, Charak, Vagbhat etc provided a lot of knowledge related to *Dushta Vrana*. They also described detail knowledge about management of *Dushta Vrana*. They described preventive measure for wound and described what to do or not for wounded patient too. So, there is huge description in *Ayurveda* to describe *Dushta Vrana* (infected wound). Now it's our skill to learn from our *Samhita* and utilize it to manage *Dushta Vrana* accordingly.

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DOWNSTREAM IMPACTS OF POTENTIAL NAGMA POKHARI GLOF EVENT ALONG THE TAMOR RIVER BASIN, NEPAL

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Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Dhyanendra Bahadur Rai* the author of the research paper entitled DOWNSTREAM IMPACTS OF POTENTIAL NAGMA POKHARI GLOF EVENT ALONG THE TAMOR RIVER BASIN, NEPAL declare that, I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal, This research paper is my original work and no part of it or its similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

Abstract

This study was carried out with the objective of identifying the elements exposed to potential GLOF risk. Downstream impacts along the Tamor River of Nagma Pokhari Glacial Lake Outburst are assessed based on three different risk zones on the basis of flood heights. Participatory risk mapping approach is adopted for this purpose. Detailed participatory field study was carried out in downstream area from the lake along the river bank. Data collection methods include focus group discussion, key informant interview, and deep observation. Focus group discussions were organized in the settlement of river basin ranged from 6 to 12 persons in each group. The group discussions focused on identification and delineation areas susceptible to potential GLOF risk exposed in those areas by making social map. The study findings show that a total of 101 households with 503 population up to 10 m, 209 households with 1019 population between 10-20 m and 388 households with 1944 population between 20-30 m flood heights are exposed at direct GLOF risk. A total of 672 households have properties mainly agricultural land, crops, sheds, houses, etc. are likely to be affected directly and indirectly up to 30 m flood height from the origin of Tamor River (Nagma Pokhari Glacial Lake) to the confluence with Arun River. The areas are likely to be affected as the natural resources such as forest, land, grazing land, and public infrastructures such as road/trails, embankments, hydropower projects, irrigation channels, schools, temples, Gumbas, settlements and bridges along the river are at risk from potential GLOF. Similarly, various livelihood options i.e. agriculture with livestock, trade and business and tourism are directly or indirectly affected by potential GLOF event.

Key Words: GLOF; Nagma Pokhari; Tamor basin; exposed to GLOF; downstream impact

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Introduction

Glacial lake outburst flood (GLOF) is a common geomorphic hazard and the flood water along with the huge amount of sediments from moraines not only causes morphological changes along the river channel but also results the loss of lives and properties at very great distances from the outburst source to downstream (Bajracharya, et al. 2007; Dwivedi, 2000; Watanabe et al.; 1998; WECS/HMG, 1987; Viuchard and Zimmermann, 1987 and 1986; and Ives, 1986). Altogether 21 GLOF events with large scale damages in downstream have been experienced in Nepal. The records of past GLOF events show that one event occurs in every 3-10 years with varying degree of socio-economic impacts (Khanal et.al.,1999). The reported water level of peak discharge ranged from 6m to 23 m depending upon the morphology of river channel. Flood surge reached downstream to 90 km with a temporary damming at different reaches up to 35 m high water level. The loss/damage of lives and properties takes place down to 90 km(Xu, 1988). The lost/damaged elements include human life, animal, house, bridge, trail/road, farmland and crops (Khanal et.al., 2009 and 2014). Traffic flow is also blocked for several days due to damage of trail/road and bridges. The risk and vulnerability is increasing in these days since many new settlements have emerged particularly close to the river and infrastructure development such as hydropower, roads, bridges and irrigation channels have taken place along the river valley.

In Nepal, 21 glacial lakes are identified as potentially dangerous (ICIMOD, 2011). Among them some are categorized as high priority for needing immediate attention and some are categorized as needing closer observation and monitoring. In this context, Nagma Pokhari Glacial Lake is one of the potentially dangerous lakes identified by scientist in Nepal. The natural resources such as forest, grazing land, agricultural land as well as infrastructures such as road/trails, bridges, irrigation channel and embankment along the river are at risk of potential GLOF. As a result, livelihood of people living in this basin is likely to be seriously affected. It is necessary to assess the impacts and risk in downstream in order to manage and reduce the increasing risk of potential GLOF event.

Methods and Materials

Downstream impacts along the Tamor River of Nagma Pokhari Glacial Lake Outburst Flood are assessed based on three different risk zone based on the flood heights. The three risk zones are flood level at 10 meter, flood level between 10 to 20 meters zone, and flood level between 20 to 30 meters zone based on the flood height experienced from past flood events. Basically, primary data were collected by using different tools and techniques for the assessment of downstream impacts of GLOF. Transect walk and observation downstream from the first settlement i. e Yangma in the north to the confluence of Arun River (Tribeni) in the south was made. Observed information was recorded in Topographical Maps and note book. During transect walk and observation, settlements and elements exposed to GLOF were noted down in the diary and map. Focus Group Discussions (FGDs) were conducted in the communities to collect information on exposed elements from the potential GLOF. In addition, participants of the FGD were requested to prepare GLOF hazard maps based on their experiences and asked to delineate potential GLOF hazard zones on Topographical Map. Altogether 16 FGD were organized and size of the groups ranged from 5 to 11 persons. At the time of group formation, attempts were made to ensure the representation of different sectors of people. In order to verify the information, KIIs were held with 20 people of different field in the community.

Downstream Impact of Potential Nagma Pokhari GLOF

Districts and VDCs Exposed to GLOF Risk and Flood Zones ; Four districts are likely to be affected due to flood. These include Taplejung with a total population of 59785 (26%), Panchthar with 57404 population (25%), Terhathum with 37073 population (16%) and Dhankuta with 76840 population (33%). Though the size of population directly or indirectly to be affected ranks second in Taplejung district, being located in the headwater zone, this district is likely to be affected most. After Taplejung, it is Dhankuta district which is likely to be affected the most.

T A B L E 2 Population and District Exposed to Potential Nagma Pokhari GLOF Risk

DISTRICT	Population	Percentage
Taplejung	63115	26.45
Panchthar	61629	25.82
Terhathum	37073	15.53
Dhankuta	76840	32.20
Total	238657	100.0

Source: CBS (2012), Compiled from National Population and Housing Census 2011 (Village Development Committee/ Municipality)

There are a total of 52 village development committees (VDCs) adjoining Tamor River basin along a distance of 200 km from Nagma Pokhari Glacial Lake to the confluence of Tamor River with Arun at Tribeni with a total population of 174,177 according to Population Census, 2011.

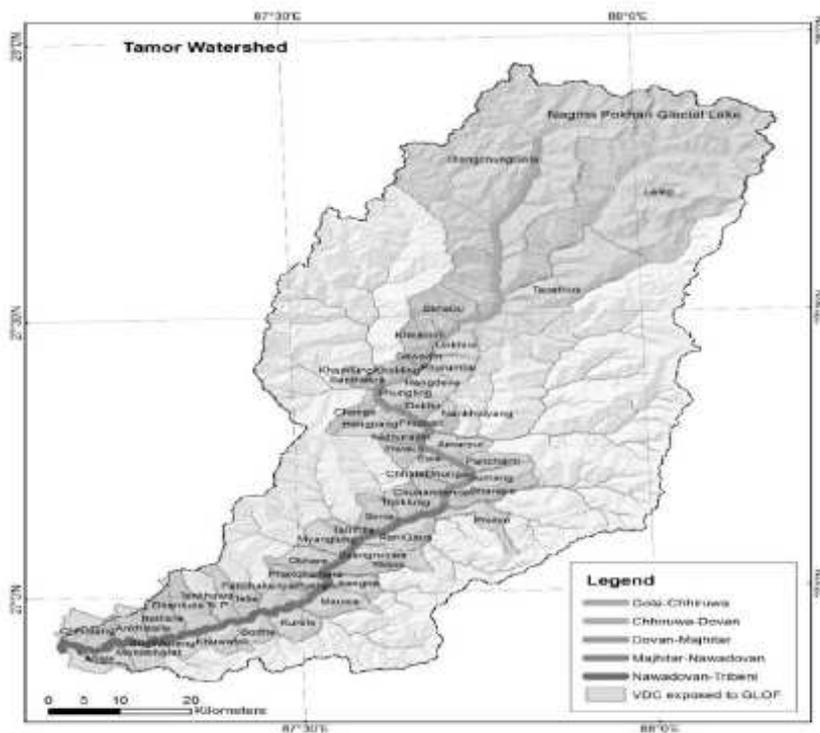


Figure 1: VDCs Along the River Down to Nagma Pokhari Lake

These 52 adjoining VDCs are likely to be affected as the natural resources such as forest, agricultural land, grazing land; road/trails and bridges along the river are at risk of potential GLOF (Figure 1). Among those, four VDCs with a total population of 5936 (2.49 percent) are located between Gola-Chhruwa zone which is likely to be affected the most. Similarly, 6 VDCs with a total population of 15475 (6.48 percent) are located between Chhruwa-Dovan zone and these VDCs are likely to be

affected moderately. The remaining 42 VDCs with 217,246 population (91.03 percent) located between Dovan to Tribeni zones are also likely to be affected.

T A B L E 3 *Adjoining VDCs and Population Exposed to Potential Nagma Pokhari GLOF Risk*

Zones	No. of VDCs	Name of VDCs/ Municipality	Population	Percent
Chhiruwa-Dovan	6	Ekhabu (partial), Linkhim, Sawadin, Phurumbu, Hangdeva, Khokling, Phungling (partial) (Taplejung)	15475	6.48
Dovan-Majhitar	17	Khamlung, Santhakra, Change, Hangpang, Phulbari, Niguradin, Phungling (partial), Dokhu, Phulbari, Nankholyang (Taplejung); Amarpur, Panchami, Bharapa, Sumang (Panchthar), Hwaku, ChhateDhunga, Ewa (Terhathum)	74323	31.14
Majhitar-Nawadovan	12	Chuhandanda (partial), Thoklung, Simle, Tamfula, Myanglung, Okhre, Phakchamara, Panchakanya Pokhari (Terhathum); Phidim, Ranigaun, Syangrumba, Yasok, Aangna, Mauwa (Panchthar)	63986	26.81
Nawadovan-Tribeni	13	Panchakanya Pokhari (partial) (Terhathum); Telia, Tankhuwa, Dhankuta N.P., Belhara, Ankhisalla, Chhintang, Ahale, Mahabharat, Budimorang, Khuwafok, Bodhe, Kurule (Dhankuta)	78937	33.08
Total	52		238657	100.00

Source: CBS (2012), Compiled from National Population and Housing Census 2011 (Village Development Committee/Municipality)

Exposure to GLOF Risk

People; People are exposed to potential Tamor GLOF risk at different level with different magnitude of stresses and losses. Those are at personal, household, community and watershed level. For example, tourists, porters and traders are exposed to potential GLOF risk at personal level. The households living and having properties – land, crops and other household items above the potential flood height from flood are directly affected with potential of loss of life and properties. Communities located at near distance from the river channel are likely to be affected directly than to the communities located at far distance from the river channel due to river blockage in social service infrastructures such as health, education, electricity, market and other social interaction as the result of the damage of physical infrastructure such as road, trails, bridges, hospital buildings and schools.

A total of 101 households with a total population of 503 up to 10 m flood zone, 209 households with 1019 population in 10-20 m flood zone and 388 households with 1944 population in 20-30 m flood zone are exposed to direct Nagma Pokhari GLOF risk. The zone between Nawadovan-Tribeni has the largest number of household (148) and population (741) exposed to Nagma Pokhari GLOF risk between 20-30 m flood level compared to others. In addition to these households and population, a total of 672 households with 3285 population have properties mainly land, crops, sheds etc. are

likely to be affected directly (with potential loss of life and properties) and indirectly (with blockade of access to service infrastructure and social networking) up to 10 m flood height from the origin of Tamor River (Nagma Pokhari Glacial Lake) to the confluence with ArunRiver.

T A B L E 4 Household and Population Living within the Area Prone to Nagma Pokhari GLOF

Zones	Flood height (meter)					
	Up to 10 m.		10-20 m.		20-30 m.	
	Household	Population	House hold	Population	House hold	Population
Gola-Chhiruwa	5	22	40	194	127	629
Chhiruwa-Dovan	46	213	37	191	56	304
Dovan-Majhitar	21	125	55	280	45	216
Majhitar-Nawadovan	6	28	8	39	12	54
Nawadovan-Tribeni	23	115	69	315	148	741
Total	101	503	209	1019	388	1944

Source: Field Survey, 2014

The total number of households and population exposed to Nagma Pokhari GLOF risk in between 10-20 flood level is 780 and 3733 respectively whereas in between 20-30 m flood level the exposed households and population is 932 and 4452 respectively. The zone between Dovan-Majhitar, a total of 290 households with 1422 population have properties in areas prone to potential Nagma Pokhari GLOF risk up to 20-30 m flood level which occupies nearly one-third (31.9 percent) in total.

T A B L E 5 Household and Population Having Properties in Areas Prone to Nagma Pokhari GLOF

Zones	Flood height (meter)					
	Up to 10 m.		10-20 m.		20-30 m.	
	House hold	Population	House hold	Population	House hold	Population
Gola-Chhiruwa	124	557	147	664	114	408
Chhiruwa-Dovan	88	457	118	590	152	774
Dovan-Majhitar	140	665	200	975	290	1422
Majhitar-Nawadovan	50	225	80	365	120	520
Nawadovan-Tribeni	270	1381	235	1139	256	1328
Total	672	3285	780	3733	932	4452

Source: Field Survey, 2014.

Settlements; Altogether 26 settlements are identified along the Tamor River, of which 8 settlements are likely to be affected by the potential Nagma Pokhari GLOF. Many of the settlements except Gola, Yanma, Chhiruwa, Handrung, Sewa, Majhitar, Mulghat and Tribeni are located above 30 m flood level. However, they are located on the fans, river terraces and unstable slopes along bank of the river which are composed of unconsolidated materials and easily eroded as the secondary impact of GLOF. So, the banks are vulnerable to GLOF. Altogether 42 settlements are identified along the Arun River, of which 35 settlements are likely to be affected by the potential GLOF from Lower Barun. The settlement, like Barun is located near the confluence of Barun River with Arun River.

Land, Crops and Livestock; Agriculture is the backbone of the study area's economy. It is also main livelihood option along the valley. Considerable parts of cultivated and forested area along the Tamor River are likely to be destroyed from the potential Nagma Pokhari GLOF. The reported total area of *khet* land at risk up to 10 m flood zone is 187.8 ha whereas between 10-20 m and 20-30 m flood zone have 235.8 ha and 196.1 ha agriculture land exposed to potential Nagma Pokhari GLOF risk

respectively. The size of *bari* land (mainly used to grow potato, maize and millet likely to be damaged is higher (872.9 ropani) than the size of *khet* land (619.7 ropani) in total. The proportion of *bari* land exposed to potential Nagma Pokhari GLOF risk is extremely high (326.2 ha) up to 10 m flood level in comparison between 10 -20 m (210.2 ha) and 20-30 m (300.5 ha) flood height. Likewise, the proportion of *khet* land exposed to potential Nagma Pokhari GLOF risk is overwhelmingly high (235.8 ropani) between 10-20 m flood height compared up to 10 m (187.8 ropani) and 20-30 m (196.1 ropani) flood height. The quantity of *khet* land likely to be damaged from Nagma Pokhari GLOF risk is high (61.8 ropani) between Chhiruwa-Dovan zone at 10-20 m flood height whereas the *bari* land likely to be damaged from Nagma Pokhari GLOF risk is high (140.0 ropani) between Maruwabesi-Dovan zone at 20-30 m flood height. Generally, *khet* land is located on flood plains whereas *bari* land is located in higher slope including higher river terraces.

T A B L E 6 *Khet and Bari Land Exposed to Potential Nagma Pokhari GLOF Risk (in Ropani)*

Zone	Flood height (meter) and land in (ha.)					
	Up to 10 m.		10-20 m.		20-30 m.	
	<i>Khet</i>	<i>Bari</i>	<i>Khet</i>	<i>Bari</i>	<i>Khet</i>	<i>Bari</i>
Gola-Chhiruwa	22.0	40.0	21.0	64.5	16.0	98.0
Chhiruwa-Dovan	54.3	13.5	61.8	17.0	47.5	31.0
Dovan-Majhitar	13.5	14.5	77.0	16.0	63.0	22.5
Majhitar-Nawadovan	10.0	207.0	17.0	5.5	20.0	9.0
Nawadovan-Tribeni	88.0	51.2	59.0	107.2	49.6	140.0
Total	187.8	326.2	235.8	210.2	196.1	300.5

Source: Field Survey, 2014

Paddy, maize, wheat, millet, potato, cardamom, fruits and vegetables are major agricultural crops likely to be damaged in the study area due to Nagma Pokhari GLOF. A total of 580.5 MT cereal crop and 480.45 MT cash crops are likely to be damaged between 20-30 m flood heights.

T A B L E 7 *Crops Exposed to Potential Nagma Pokhari GLOF (MT)*

Zone	Flood height (meter) and crop (MT)					
	Up to 10 m.		10-20 m.		20-30 m.	
	Cereal Crops	Cash Crops	Cereal Crops	Cash Crops	Cereal Crops	Cash Crops
Gola-Chhiruwa	47.2	34.6	59.8	54.0	73.9	77.2
Chhiruwa-Dovan	95.7	14.1	47.6	18.6	64.3	23.3
Dovan-Majhitar	41.7	4.6	97.8	13.2	85.9	15.3
Majhitar-Nawadovan	15.8	2.7	23.7	6.0	31.0	9.8
Nawadovan-Tribeni	291.0	92.7	289.7	210.5	325.4	354.8
Total	491.4	148.7	518.6	302.3	580.5	480.4

Source: Field Survey, 2014

The total likely damage of both cereal and cash crops from Nagma Pokhari GLOF risk is high in the same zone between Nawadovan-Tribeni in each flood level. Potato, maize, cardamom and millet are the major crops likely to be affected in the upper part of the basin whereas it is paddy, wheat and maize in the downstream areas. Among them, cardamom is the main agricultural cash crops likely to be damaged from Nagma Pokhari GLOF in the upper part of Tamor River basin. The attraction of cardamom has increased in the recent days due to its rising price. So, expansion of cardamom cultivating area has increased rapidly in this region.

As the animal husbandry is the second largest means of livelihood after agriculture along the Tamor River valley. The total number of animal kept by the families likely to be affected directly from GLOF is 5147 comprising 68.2 % between 20-30 m flood level, compared with up to 11.9 % up to

10 m and 20.0 % between 10-20 m flood heights. Of the total likely to be affected animals (5147), more than two-fifths (41.2 percent) were found likely to be affected in the zone between Gola-Chhiruwa at 20-30 m flood height.

TABLE 8 *Animals Owned by the Families Exposed to Potential Nagma Pokhari GLOF Risk*

Zone	Flood height (meter) and Animal (no)		
	Up to 10 m.	10-20 m.	20-30 m.
Gola-Chhiruwa	155	238	2120
Chhiruwa-Dovan	205	186	285
Dovan-Majhitar	100	230	250
Majhitar-Nawadovan	13	17	30
Nawadovan-Tribeni	137	358	823
Total	610	1029	3508

Source: Field Survey, 2014

Animals are also grazed along the river valleys and they are also used in transporting goods particularly in the upper and middle part of the basin. Mules are also used in transporting goods along Tamor valley. These are also at risk of potential Nagma Pokhari GLOF.

Public Infrastructures

Private and Public Buildings; A total of 19 *pakki* houses and 227 *kachchi* houses are at risk of GLOF between 10-20 m flood heights. Similarly, the total number of *pakki* and *kachchi* houses exposed to Nagma Pokhari GLOF is 6 and 169 respectively. Of the total *pakki* and *Kachchi* houses likely to be damaged from Nagma Pokhari GLOF, about 38.7 percent *pakki* and 25.7 percent *kachchi* houses fall under the zone between Chhiruwa-Dovan and Nawadovan-Tribeni at 10-20 m and 20-30 m flood height respectively.

TABLE 9 *Houses Exposed to Potential Nagma Pokhari GLOF Risk*

Zone	Flood height and houses (number)					
	Up to 10 m.		10-20 m.		20-30 m.	
	<i>Pakki</i>	<i>Kachhi</i>	<i>Pakki</i>	<i>Kachhi</i>	<i>Pakki</i>	<i>Kachhi</i>
Gola-Chhiruwa	-	-	1	54	-	151
Chhiruwa-Dovan	-	-	15	34	19	48
Dovan-Majhitar	-	-	-	55	-	49
Majhitar-Nawadovan	-	-	-	11	-	14
Nawadovan-Tribeni	-	-	3	73	6	169
Total	-	-	19	227	25	431

Source: Field Survey, 2014.

About 30.9 percent of these houses at risk are used for trade and business comprising teashops, shops and hotels. Among them, 59 are teashops, 93 are shops and 63 are hotels. Many of these are located in market centers along the bank of Tamor River.

TABLE 10 *Shops, Hotels and Teashops Exposed to Potential Nagma Pokhari GLOF Risk*

Zone	Flood height (meter) and Shop, Hotel and Tea shop								
	Up to 10 m.			10-20 m.			20-30 m.		
	Shop	Hotel	Teashop	Shop	Hotel	Teashop	Shop	Hotel	Teashop
Gola-Chhiruwa	-	-	-	11	9	9	21	7	7
Chhiruwa-Dovan	-	-	-	16	11	5	15	15	7

Dovan-Majhitar	-	-	-	-	-	-	3	-	3
Majhitar-Nawadovan	-	-	-	-	-	1	-	-	5
Nawadovan-Tribeni	-	2	1	9	6	6	18	13	15
Total	-	2	1	36	26	21	57	35	37

Source: Field Survey, 2014

There are altogether 29 public institutional building comprises school and office buildings, and temple/Gumba. Of these, 58.6 percent (17) public institutional buildings fall between 20-30 m, 31.0 percent (9) between 10-20 m and 10.4 percent (3) up to 10 m flood height.

T A B L E 11 Public Buildings Exposed to Potential Nagma Pokhari GLOF Risk

Zone	Flood height (meter)		
	Up to 10 m.	10-20 m.	20-30 m.
Gola-Chhiruwa	1	5	7
Chhiruwa-Dovan	-	1	5
Dovan-Majhitar	-	-	-
Majhitar-Nawadovan	-	-	1
Nawadovan-Tribeni	2	3	4
Total	3	9	17

Source: Field Survey, 2014.

Roads, Trails, Canal and Embankments; Trail is also at risk in several places if it is blocked traffic flow for several days. The trail of about 4 km is at risk. About 8 km of road, 103.9 km of trail, 27 km canal and 0.07 km river bank structure such as spur and retaining walls and embankment are at potential GLOF risk. All of these infrastructures are highly likely to be damaged between 20-30 m flood heights compared to others. Road is highly exposed to GLOF between Nawadovan-Tribeni zone up to 10 m and 10-20 m flood height comprising 0.34 km and 0.69 km whereas at 20-30 m flood height it is higher between Majhitar-Nawadovan zone comprising 3.5 km.

T A B L E 12 Trails, Roads and Embankment Exposed to Potential Nagma Pokhari GLOF

Zone	Up to 10 m.				10-20 m.			20-30 m.		
	Road	Trail	Canal	Embankment	Road	Trail	Canal	Road	Trail	Canal
Gola-Chhiruwa	-	10.5	1.2	-	-	17	0.5	-	22	1
Chhiruwa-Dovan	-	2.8	1.7	0.07	-	5.7	1.5	1	10.5	3.7
Dovan-Majhitar	-	3.2	1.2	-	-	2.5	1.3	-	3.8	1.2
Majhitar-Nawadovan	0.1	2	0.6	-	0.1	2	0.7	3.5	6	0.8
Nawadovan-Tribeni	0.34	3.8	4.1	-	0.69	5.4	3.8	2.3	6.7	4.0
Total	0.44	22.3	8.8	0.07	0.79	32.6	7.8	6.8	49	10.7

Source: Field Survey, 2014.

The quantity of trails exposed to GLOF is higher at all flood level between Gola-Chhiruwa zone comprising 10.5 km up to 10 m, 17 km at 10-20 m and 22 km at 20-30 m. The exposed quantity of canal to GLOF is high between Chhiruwa-Dovan zone comprising 1.7 km, 1.5 km and 3.7 km up to 10 m, 10-20 m and 20-30 m respectively.

Bridges; Along the Tamor River, altogether 46 bridges, of which 33 suspension bridges, six motorable bridges (highway bridges) and seven wooden bridges were identified during field study. Wooden bridges are located in upper part of river basin, motorable bridges are in lower part and suspension bridges are located in middle part of the basin. These bridges are located considerably higher place than the expected flood level from the GLOF. However, the foundations of many suspension bridges are likely to be susceptible to lateral erosion during the GLOF.

T A B L E 13 *Bridge Exposed to Potential Nagma Pokhari GLOF Risk*

Zone	Flood height					
	Up to 10 m.		10-20 m.		20-30 m.	
	Suspension Bridge	Wooden Bridge	Suspension Bridge	Highway bridge	Suspension Bridge	Highway bridge
Gola-Chhiruwa	2	7	5	0	4	-
Chhiruwa-Dovan	4	-	1	-	4	-
Dovan-Majhitar	-	-	-	-	3	3
Majhitar-Nawadovan	-	-	-	1	5	1
Nawadovan-Tribeni	-	-	4	-	1	1
Total	6	7	10	1	17	5

Source: Field Survey, 2014

Hydropower and Transmission Line; Currently, there are three hydroelectricity projects along the Tamor River and its tributaries. However, the power houses of three micro-hydro projects in the tributaries of Tamor are located along their banks which are susceptible to GLOF damages. Likewise, 14.7 km transmission lines are exposed to Nagma Pokhari GLOF risk. There are several proposed hydropower projects which are likely to be affected by the potential GLOF in this basin.

T A B L E 14 *Power House and Transmission Line (km) Exposed to Nagma Pokhari GLOF*

Risk category	Power house	Transmission line
Up to 10 m	-	1.39
10-20 m	1	4.47
20-30 m	2	8.9
Total	3	14.76

Source: Field Survey, 2014

Tourists and Porters; Tourism is also one of the livelihood options of people living in this basin. Although, the flow of trekking and mountaineering tourist along the Tamor valley is still low (250-300 per year). Tourism activities are occurred in seasonal basis. Limited people are engaged in tourism related activities. Large numbers of porters (about 300/month) are involved for carrying loads as porter in this basin. These tourists and porters are likely to be affected from the potential Nagma Pokhari GLOF.

Conclusions

There are a total of 52 VDCs containing with four districts adjoining Tamor River basin along a distance of 200 km from Nagma Pokhari Glacial Lake to the confluence at Tribeni with a total population of 174,177. These VDCs are likely to be affected as the natural resources such as forest, agricultural land, grazing land, road/trails and bridges along the river are at

risk of potential GLOF. As a result, livelihood of people living in this basin is likely to be badly affected. The ethnic group (Sherpa, Limbu, Rai, Magar, Tamang and Newar), marginalized group (Majhi) and Dalits are highly vulnerable to GLOF risk because they have generally less access in national context. Many hydropower projects are going to be implemented in near future along the Tamor River. If GLOF occurs after the implementation of those proposed projects in the future, the investment on hydroelectricity development and the revenue from it will be at risk. Until now, no specific preparedness activity for the reduction of risk of potential GLOF has yet been carried out in this area. However, some people are aware with the fact that the risk of GLOF has been increasing in recent years due to the process of global warming. During group discussion, some participants express their curiosity about climate change and potential GLOF outburst. It is in this context that awareness creation program should be developed and implemented. Very few people are familiar with some of the mitigation measures – lake level lowering, early warning system, construction of river bank structure, land use planning etc. Moreover implementation is very limited due to lack of managerial and technical knowledge, financial resources, institutions and legal provision. Special fund for research, awareness creation, and design, implementation, monitoring of mitigation and adaptation measures should be recognized.

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SOCIETAL PROBLEMS IN THE UNITED PROVINCES AND THE BRITISH

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Declaration

The Declaration of the authors for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: We, *Geeta Singh and Harpreet Kaur* the authors of the research paper entitled SOCIETAL PROBLEMS IN THE UNITED PROVINCES AND THE BRITISH declare that , We take the responsibility of the content and material of our paper as We ourself have written it and also have read the manuscript of our paper carefully. Also, We hereby give our consent to publish our paper in Anvikshiki journal , This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else.We authorise the Editorial Board of the Journal to modify and edit the manuscript. We also give our consent to the Editor of Anvikshiki Journal to own the copyright of our research paper.

Abstract

The North Western provinces was a part of the British India.. In 1858, Oudh was annexed and merged with the North Western Provinces. In 1902, this province was reorganized to form the United Provinces of Agra and Oudh .The region was governed by a Lieutenant Governor who was appointed by the East India Company from 1836-1858 , and by the British Government from 1858 to 1902.

Keywords: Pindaris, plunder, anglo- maratha, annexation, suppression, havoc.

Introduction:

Many problems were faced by the Indian society in the 18th century. This research paper studies few problems faced by the people in the United Provinces and the efforts of the British to solve these problems. The outcome of the British efforts were successful in few and received a mixed response in others. The few problems mentioned in the paper are the havoc caused by pindaris, the curse of female infanticide, the prevalence of thugi and dacoity, famines in the North Western Provinces.

Pindaris

The Pindaris were muslim horsemen who raided the Indian provinces and plundered and looted them. They defeated the mughal soldiers with the Marathas in Central India during the 18th century¹. After the

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Second Anglo- Maratha War, Shinde and Holkar, the Maratha Chiefs lost many of their territories to the British. The Pindaris were encouraged by them to raid the British possessions². They scattered themselves throughout the Maratha states. The Maratha chiefs gave them protection and in return they supplied all the commissariat required by their armies.. Their main purpose was to plunder. They created havoc during the 18th century at the time of the breakdown of the Mughal empire and the rule of the Marathas at that time³. They didn't receive any payments but exercised their free will in plundering the adjoining provinces. They became a threat to the North Western provinces of British India as well. One of the Pindaris, named Amir khan , raided into the North Western provinces in 1805. The city of Mathura was raided after they crossed Rohilkhand and looted the town of kashipur⁴. Sir Arthur Wellesley and Lord Lake in 1802-04 cracked down the Marathas. Pindaris made Malwa their headquarters while the Maratha dynasties like Sindhia and Holkar gave them protection. The Pindaris were known as Shindeshahi and Holkarshahi after the patronage they received from their respective defeated Maratha leaders.

The conflict between the English and the Pindaris paved the way for the Third Anglo- Maratha war (1817-1818). The war left the company in control of most of India. The British forces were led by Governor General Hastings against the Pindaris. The Court of Directors of East India Company gave their approval to Lord Hastings to eliminate the Pindaris. This organized campaign is known as the Pindari war or the Third Anglo Maratha War. Peshwa Baji Rao II's forces supported by those of Mudhoji II Bhonsle of Nagpur and Malharrao Holkar of Indore stood against the East India Company. The Pindaris were attacked under this planned military attack. The three strong Pindari leaders were Karim Khan Pindari, Chitu Pindari and Wasil Muhammad Pindari. The British army was surrendered from two smaller armies , the Bengal army in the North under the command of General Francis Rawdon Hastings and the army of the Deccan under General Hislop in the South. As planned, the Pindaris were attacked and their homes were destroyed. The Pindaris were unable to escape and dispersed all over the country. The British defeated them from all the directions and their was brought to a close. Most of the Pindari leaders surrendered to the British by February 1819. The pindari forces were completely broken up. Many pindaris fled to the jungles and perished while others were killed by the villagers who suffered atrocities at the Hands of the Pindaris earlier⁵.

The war thus, completed the expansion of the first and the second Anglo Maratha wars⁶. Ultimately, the Maratha powers too surrendered to the British. The British acquired the large Maratha territories . The Nassak diamond was seized from the Peshwa by the British⁷. The Peshwa's territory became a part of the Bombay Presidency and the territories seized from the Pindaris became the Central Provinces of British India.

Female Infanticide

Female Infanticide is the deliberate killing of new born female children.

Female Infanticide, was first attacked by the British Government, has prevailed among certain tribes, the Gakkars of the Panjab, for instance, from time immemorial. In this Province attention was first directed to it by Mr Jonathan Duncan, one of the ablest officers of the Civil Service, who, in 1789, found it prevalent among the Rajkumar Rajputs of the eastern districts. For many years the Government endeavoured to counteract it by the personal influence of its officials, by tribal conferences, and engagements for the reduction of marriage expenses. It was soon realised that the practice rested on social influences of great stringency. Rajputs, one of the tribes chiefly addicted to the practice, follow in their marriage arrangements what has been called hypergamy in other words, the rule is that the honour of the family depends on the alliance of girls with youths of a sept superior in rank to their own. This

involves, if not the actual payment of a bridegroom price, such inordinate expenditure in marriage entertainments and dowry as seriously cripples the resources of a man whose quiver is full of daughters. The result of this feeling among Rajputs, Jats, Gujars, and Ahirs, the castes among whom it most widely prevailed, was the wholesale destruction of new-born girls. In 1843, among the Chauhans of Mainpuri, one of the proudest of the local Rajput septs, there was not a single female child to be found. Under pressure enforced by the district officers, notably by Messrs Unwin and Raikes, the number rose to 299 in 1847, and 1079 in 1854. At the same time, Mr Raikes recognized the futility of all attempts to enforce a sumptuary law. "The real motive for extravagance, and, therefore, the hidden cause of infanticide," he wrote, "lay entirely beyond the reach of any such law. A Thakur's ambition to make an illustrious alliance could only be gratified by purchasing a son-in-law of nobler blood than his own; the nobler the alliance the larger the sum. So long as this costly ambition remained rooted in the Thakur's soul, the scale of expenditure could not be controlled. The habit of contracting equal marriages must be naturalised to him directly by advice and encouragement, and indirectly by the enactment of heavy penalties to follow the destruction of daughters." The Government was still loath to adopt direct measures of repression; but later enquiries showed that determined action could no longer be delayed. In 1868, a special census of the suspected clans showed only 22 per cent, of girls in the whole minor population. It was found, also, that the wise councils of the local officers had done little to check marriage expenses. In 1869, the Raja of Mainpuri, the head of the Chauhans, married his daughter to the son of the Raja of Bhadawar; and though there was no actual dowry paid, the relations of the bridegroom appropriated whatever took their fancy, and the total cost was not less than a lakh and a half of rupees. All this led to the enactment of the law of 1870, which has remained in force since that time. The main provisions of the statute prescribed special registration of births and periodical parades of the infant population, registration of the movements of women of the child-bearing age, special inquests in the case of the death of girls, and control over the village midwives. The result of these measures, according to the latest available statistics, those of 1893-94, may be thus summarised:—The proclaimed population included 93,135 persons, spread over 608 villages in 21 districts. In 100 children under the age of six, there were 40 girls to 60 boys, the provincial average of girls under five years of age being 1020 to 1000 boys. The statistics are to some degree affected by the fact that among the tribes known still to practise infanticide, there is a natural tendency at each decennial census to conceal the existence of girls, whose presence unmarried in a family is a mark of dishonour. Thus, in the Central Ganges-Jumna Duab the last census showed in 10,000 of the population 4581 females to 5419 males. Here the figures point to a concealment of females at all the age periods. The general result is that infanticide is decreasing everywhere except in the block of districts represented by Etah, Etawah, Mainpuri and Budaun, where it was always most prevalent, and even in those districts the improvement since the first introduction of repressive measures has been marked. There seems also to be an increasing tendency to the exaction of a bride-price, one of the most efficient checks on the practice; and, among some of the more intelligent castes, the movement for the reduction of marriage expenses has met with a certain degree of success. The actual murder of little girls has in a great measure ceased, but it has been replaced in some of the tribes by a degree of carelessness hardly less criminal. It is found in some districts that, when fever is prevalent, the girl deaths, and more especially in the first three years of life, so largely exceed those of males that it is impossible not to believe that but small efforts are made to save the girls, and in many places deaths caused by disease of the lungs or malnutrition suggest the same conclusion.

The only effective remedy for this is to utilise the provision of the Act which empowers the Magistrates to take charge of sickly infants and rear them at the expense of the parents. This rule of the law has been enforced in some places with marked success. There is little chance of securing the conviction of the

parents where deaths occur through neglect, and it seems clear that the only chance of repressing this crime is to make the supervision so effective and irksome that the people will find it to their interest to protect their girls until they reach a percentage which will entitle them to exemption from the control of the law. The lack of brides among Rajputs, in that part of the country' where infanticide was most rife, seems also to be one of the causes which have contributed to that outbreak of violent crime which has been a distinguishing feature. Young men, deprived of the chance of enjoying married life, have been forced into connections with women of the vagrant tribes—Haburas, Beriayas, and the like.⁸

However, a lot measures were taken by the British government to control the situation. Complex system of surveillance were established in suspected villages : a messenger was appointed in every village to report on the birth of a girl, in addition the village watchman, midwife and constable were all separately to report the event to the police station and therefore serves as checks on each other; finally on the third or fourth day the midwife accompanied by the policeman and watchman were to visit the family and report on the condition of the child under the belief that once the child had been breastfed , the family, would not ,or rarely kill it. Civil surgeons were under orders to conduct post –mortems of suspicious deaths in the case of infant girls, new police stations were opened to give greater access to chowkidars and villagers; an Infanticide Catechism was prepared for police officers to ask and record the proper information. In the period between 1871 and 1875, there were 34 convictions. The sentence in these cases were usually fine and a few months or years' imprisonment. We argue that the elaborate system of coercion in the North Western Provinces were devised in the aftermath of the rebellion of 1857, as a direct result of the political events of 1857. Not only did the annexation of Awadh play a major role in fermenting the rebellion in 1857 most of the rebellion took place in the North Western provinces of Awadh and Agra. Furthermore many of the British officers who had been active in the anti-infanticide movement in the North Western provinces before 1857 were murdered or died during the rebellion , while those who survived rose to high positions in the colonial government.⁹

The British passed the Female Infanticide Prevention Act, 1870 also Act VIII of 1870 to prevent murder of female infants¹⁰. The Act was initially applicable only to the territories of Oudh, North Western provinces and Punjab though it could be extended to other provinces by the Governor General. The Christian missionaries and the social reformers pressurized the British government to put an end to female infanticide in South Asia. These crimes were most common in Oudh,, North Western provinces and Punjab. A special police force was created to maintain birth, marriage and death registers, to conduct census of the district. The guilty were imprisoned and or had to pay fine under the law¹¹.

Thugi

It was as early as 1810 that General St. Lager, the Commmander-in-chief cautioned his soldiers against" a description of murderers denominated Thugs" who infested the districts of the doab and other parts of the Upper Province. The government, however, took no notice of these bad characters. The result was disastrous not only for the peace and administration of these areas but also for the whole of the North Western provinces and Central India. Gang robberies and thugi became widespread all over and therefore, at last Lord Bentick had to institute a new department for the suppression of thugi under the charge of Colonel Sleeman. The Colonel came in close contact with the thugs apprehended some of them and, holding out promises of not only pardon but also of employment under the Company soon drew out the secrets out of them. The secrets of the thugs were revealed with regard to their gangs and methods of work. An account of the discoveries made by Sleeman has been recounted by him in his Report of the Depredations committed by the thug gangs of Upper and Central India which was published at Calcutta

in 1840 London has referred to a famous thug leader, Amir Ali who turned an informer and thus, saved his life. In the North Western provinces the gang of thugs had been destroyed and scattered by 1852¹².

Though the peculiar form of strangling practised by the Thags prevailed from very early times, and was known to our officers soon after we occupied the country, it did attract much general attention till the revelations of Captain (afterwards General) Sleeman were published about 1830, when it became apparent that this brotherhood of crime had its agents all over India. Traders and pilgrims, dancing girls, and soldiers returning from leave, were all victims of these fiends in human shape. Many of these ghastly tragedies, played at these lonely halting places, or even in frequented camps, where the tent of the European officer was sometimes pitched over the very grave of the victim, will never be told on this earth. But enough was soon known to put the detectives, aided by the statements of informers, on the track of the strangler. In the ten years between 1826 and 1835, 1562 persons were tried in India for this crime, of whom 1404 were convicted, and sent to the gallows or transported for life. Many who escaped the hangman were interned for the rest of their days in a special prison at Jabalpur. By 1860, after a steady campaign prosecuted for thirty years, these gangs had been completely destroyed, and Thagi, in its original form, was completely stamped out.¹³

Dacoity

The most useful work accomplished in the North Western provinces was the suppression of dacoity and robbery. Gangs of robbers and dacoits hunted the public highways and perpetrated crimes of all sorts most frequently by violence attended with murder and death committed at night. Treasure and other portable articles were their object of attack. Dacoity was followed as a profession by some influential persons and landlords of the pre British days who had been uprooted and left without a living due to the new revenue system and record of rights prepared by the British administrators of India especially in the North Western provinces. These dacoits and robbers were very dangerous to the peace of the province as they spread all over and plundered and robbed the civil population. In order to suppress dacoity, therefore, it was decided to institute the office of a superintendent for the suppression of dacoity and Sir Charles Metcalfe, the Lieutenant Governor of the North Western Provinces made arrangements for it on receiving the permission of the Supreme government. When Lord Auckland took over the North Western Provinces administration on January 01, 1838 he decided to suppress thugi and dacoity under Colonel Sleeman who had shown unusual success in suppressing thugi. The crimes of thugi and dacoity were suppressed through the agency and cooperation of informers and approvers. The dacoits were vigorously pursued in all parts of Northern India. Rohilkhand was a criminal area of the province and a large number of dacoits and robbers had their headquarters in that region. The criminal records of the Kanpur district were also very bad. In the early years of the North Western Provinces therefore, a special magistrate had to be appointed for maintaining peace and order. A large number of bad characters had established themselves in the tarai region just below the Himalaya mountains. They committed the most fearful atrocities and created havoc in the North Western Provinces. Lord Auckland thus appointed a magistrate and tahsildars were appointed throughout the North Western Provinces to exercise the powers of police and thus help in the suppression of crime in accordance with the Regulation XI of 1831¹⁴. The Awadh frontier on the three sides of the North Western Province caused trouble and was a source of constant danger to the peace of the province. The government of the North Western Provinces had to raise a special police battalion for the preservation of public peace on the Awadh frontier in 1844. However, after the annexation of Awadh by Lord Dalhousie proper administration was established there¹⁵.

Famines

Famines are known to be frequent under the British rule. Severe famine visited the province in consequence of a failure in monsoon which was followed by a famine in the Trans Jumna districts. In 1837-38 occurred the worst famine of the nineteenth century. From Allahabad to Delhi the famine was intense, especially between Cawnpore and Agra. The rains had almost failed completely. The mortality was great and the country did not recover for many years. Then came the disturbances of Mutiny and two years of irregular rainfall. In 1860 the monsoon failed and famine was general in the western districts of Bundelkhand and very severe between Agra and Delhi. The Rajputana Famine of 1868 affected the whole of the west of the provinces and Bundelkhand. The Bihar famine of 1873-74 was accompanied by scarcity in the adjacent districts on the East of these provinces and also in Bundelkhand. The failure of the monsoon in 1877 was the worst. The monsoon of 1895 in Bundelkhand. Efforts were taken by the British to tackle this problem. The Doab was intersected with canals, the greatest being the Upper Ganges Canal and the Lower Ganges Canal. The government offered advances for the construction of wells. A programme for extending canals and banking up small streams to form reservoirs was carried out.¹⁶

Conclusion

The above were few problems that disturbed the peace and prosperity of the province besides, affected the working of the British government. In countering these problems, the British had to face the opposition of the Indian population as well. These problems were deep rooted and created an uphill task for the British Government. The United Provinces being the largest and an important province of British India gets attention. No doubt, the tasks undertaken by the British are praiseworthy to rid the United provinces of its various societal problems.

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FUTURE AND PROSPECTS OF DIRECT SELLING IN INDIA

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Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Arun Kant Gautam* the author of the research paper entitled FUTURE AND PROSPECTS OF DIRECT SELLING IN INDIA declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This research paper is my original work and no part of it or it's similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

Abstract

Direct selling or multi-level marketing is one of the oldest and traditional forms of selling, is likely to reach Rs. 64,500 crore billion in India by 2025. Direct selling has already emerged as a successful industry in over 100 countries, with a market size of USD 180 billion.

Direct selling guidelines will safeguard the interests of consumers, as well as identify and help protect ethical direct selling companies. There are many recent regulatory changes in this industry. Present paper analyse the future and prospects of Direct Selling in India. This paper is entirely based on secondary data

Keywords: Direct Selling, Network Marketing, Multi- Level Marketing and Ponzi Schemes

Introduction

In 1855, Rev. James Robinson Graves developed a business model that had young men going door to door to sell products, forming the basis of the company known today as Southwestern. Nearly 160 years later, direct selling engages more than 16 million people in the United States and nearly 100 million people around the world, with 22 billion-dollar global markets. Direct selling companies are committed to not only bringing quality products to the global audience, but also a quality of life that can, and does, change lives.

Traditional distribution system consists of a long list of intermediary between manufacturer and customer. In the case of direct selling product is sold to customer with the help of a distributor network.

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As per IDSA (Indian direct selling association) Direct Selling means the marketing of consumer



products/services directly to the consumers generally in their homes or the homes of others, at their workplace and other places away from permanent retail locations, usually through explanation or demonstration of the products by a direct seller.

As per a Report on Indian Direct Selling Industry Published by FICCI and KPMG in 2015 “The direct selling market in India has grown at a CAGR of 16 per cent over the past five years to reach INR75 billion today. The market grew at a lower rate of 4 per cent in 2013-14 due to slowdown in the industry. The Indian Direct Selling Industry is well placed to successfully foray into international and domestic markets.

However, there are many issues and challenges that need to be overcome to make that vision a reality. The factors hampering full-fledged growth include: *fly-by-night Ponzi and pyramid schemes which are often confused with direct selling*, a clear legal definition of the industry, and clear and centralised regulations”.

Direct selling consists of two main business models:

- single-level marketing, in which a direct seller makes money by buying products from a parent organization and selling them directly to customers, and
- Multi-level marketing (also known as *network marketing* or *person-to-person marketing*), in which the direct seller may earn money from both direct sales to customers and by sponsoring new direct sellers and potentially earning a commission from their efforts.

This single level marketing is hugely practiced in e-commerce. The sellers are rewarded on their sole purchase, and they cannot refer anyone nor can enjoy rewards on their purchase. On the other hand, MLM offers rewards on both types of sales. That’s the basic and sole difference between the two. People are often confused between MLM and Pyramid Scheme.

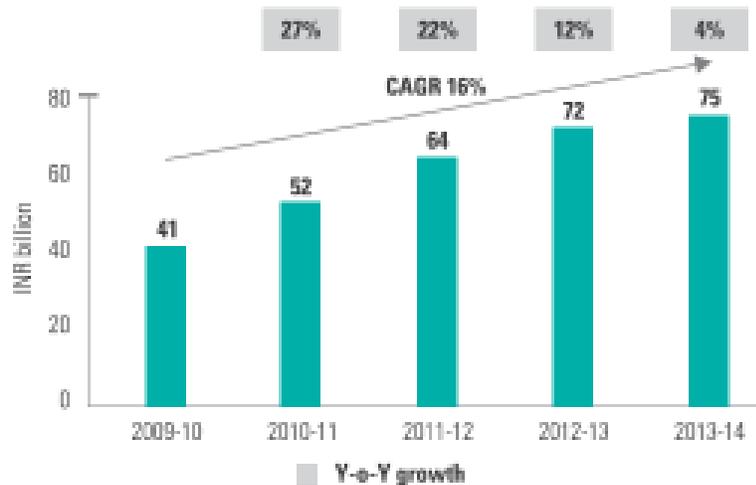
Direct Selling in India

According to the Indian Direct Selling Association (IDSA), the direct selling market is estimated to hit INR 15,000 Crore by 2019-2020. 60% of the market is occupied by the foods and drinks segment. In 2015 too it was this segment that showed the highest current value growth rate of 34%.

Recently, the Direct Selling Guidelines 2016 was issued. Acting in tandem with this new set of guidelines is the Food safety and Standards Authority of India (FSSAI). Both IDSA and FSSAI are looking forward to entrust 40,00,000 distributors of IDSA’s member companies with the task of spreading food-related awareness.

Moreover, the industry aims to create business opportunities to about 90,00,000 people by 2019-2020. A very interesting fact about this industry is that women work-force is stronger here than men work-force.

Direct selling market size in India



Source: IDSA annual survey 2013-14 in association with PHD chamber for years 2009-2014, FICCI Direct Selling Task Force

Direct Selling industry has many players in India. One can judge them by looking at the proposition. There is no free lunch, and the business plans mentioning quick money without effort is definitely a fraud. IDSA clearly specifies the working structure of Ponzi scheme or pyramid schemes and genuine multilevel marketing firms.

There is an immediate need to bring awareness among people not to fall prey to such machinations by telling them that it was crime under the provisions of the Prize Chits and Money Circulation Schemes (Banning) Act, 1978. It may act as a deterrent to some extent.

As long as people are greedy and want to make easy and quick money irrespective of their feelings towards their friends and relatives to cheat them, the direct selling would flourish. Due to the direct selling, referral marketing, network marketing, multilevel marketing, the relations between people would be strained if not turn enmity. The people who joined such schemes at the behest of their friend or relative would certainly lose money since he might not be able to cheat others. So naturally he gets angry with the person who joined him in the scheme.

However, there are industry leaders like Amway, Herbalife, Avon, Tupperware, Oriflame etc that are genuine businesses.

Direct Selling Guidelines 2016

Shri Ram Vilas Paswan, Minister of Consumer Affairs, Food and Public Distribution; announced *Model guidelines on Direct Selling* with a press release on Monday, 12th September 2016. Organizations like Strategy India, Federation of Indian Chambers of Commerce & Industry (FICCI), KPMG, Indian Direct Selling Association (IDSA) along with all legitimate Direct Selling companies has been requesting Indian Govt. to come up with clear Direct Selling industry guidelines for ages.

These guidelines include; • Guidelines for Direct Selling Companies, • Guidelines for Direct Sellers, • Guidelines for both – Protection of private information of consumers and • Regulatory Authority – State Government in State & Ministry of Consumer Affairs in Union

Guidelines for Direct Selling Companies

- i. All Direct Selling companies need to submit an undertaking to Ministry of Consumer Affairs as per these guidelines.
- ii. A Direct Selling company cannot encourage its Direct Seller to purchase more products or services than they can expect to consume or sale.
- iii. A Direct Selling company cannot give remuneration or incentive to any Direct Seller for recruitment / enrolment of new participants. Remuneration must be strictly tied to sales of goods and services.
- iv. No Direct Selling company can demand any fee from its Direct Sellers related to participation.
- v. Direct Selling Company needs to provide written contracts to all its Direct Sellers, mentioning *buy-back, repurchase policy, cooling off period, warranty and refund policy*.
- vi. Every direct selling company must allow its new distributors a period of time (termed as 'cooling off period') within which they can return products, cancel participation and get refund.
- vii. Direct Selling companies should have a reasonable policy to buy back unsold products
- viii. Every direct selling company should have a proper grievance redressal mechanism.
- ix. Calculation of remuneration should be disclosed.
- x. Now for doing direct selling in India registration is required.
- xi. Now Direct Selling companies need to ensure mandatory orientation sessions for prospective Direct Sellers with fair and accurate information on all aspects of Direct Selling operation.
- xii. Anyone important in the company management, can't have a criminal record (imprisonment) in last 5 years.
- xiii. Every Direct Selling company must have an office, where consumers and Direct Seller can visit to get information or after sales service.
- xiv. Every Direct Selling company must issue proper identity documents for all its Direct Sellers.
- xv. Company must maintain proper records of their business dealings, with complete details of their goods, services, terms of contract, price, income plan, details of direct sellers, including but not limited to enrolment, termination, active status, earning etc. and company should also maintain a register of direct seller.
- xvi. *Direct Selling companies should maintain proper and updated website with all relevant details.*
- xvii. Company should send regular information to its Direct Sellers regarding sales, purchases, details of earning, commissions, bonus and other relevant data, periodically.
- xviii. Company must intimate a Direct Seller to pay the VAT
- xix. Companies need to very strict in an attempt to stop 'false promise' and 'deceptive approach'.
- xx. A Direct Selling company will be liable for any grievance arising out of any business operations from its Direct Sellers.
- xxi. A Direct Selling company can terminate contract with a Direct Seller with reasonable notice.

Guidelines for Direct Sellers

- i. A Direct Seller should have to provide all the relevant information to the prospect / consumer at the time of the sale.
- ii. A direct seller have to *disclose his/ her identity, identity of the Direct Selling company, nature of the goods and services sold and the purpose of the interaction.*
- iii. A direct seller should carry his/her company provided identity card and should visit customer's premises with prior appointment / approval.

- iv. *A direct seller should provide Accurate and complete explanations and demonstration of the product and the company.*
- v. *A direct seller should have a bookkeeping habit, recording all information related to products, price, volume sold, tax etc*
- vi. *A direct seller should be careful about any claims. If you can't verify it, don't claim it. And same for promises don't make promises that cannot be fulfilled.*
- vii. *Every Direct Seller should only purchase goods or services that they can expect to consume or sell.*
- viii. *Promoting literature or training material should be done with the prior approval of the company.*
- ix. *You should not encourage other Direct Sellers to purchase any training materials, sales tools or demonstration equipment.*
- x. *To sell any Direct Selling company's products on eCommerce sites and/or to promote any offer on those, you need to take written consent from your Direct Selling company.*

Guidelines for both – Protection of private information of consumers; Both Direct Seller and Direct Selling company, would be liable for protection of all private information provided by the consumers, under the Consumer Protection act 1986.

Regulatory Authority – State Government in State & Ministry of Consumer Affairs in Union; State governments will setup a mechanism to monitor / supervise activities of Direct Sellers and Direct Selling companies, to ensure that they are compliant with these guidelines. At State level, State Governments will be in charge. And at national level, Ministry of Consumer Affairs will be the regulatory authority for any issues arising out of Direct Selling.

The Prize Chits and Money Circulation Schemes (Banning) Act, 1978

Conventional chit means a transaction whether called chit, chit fund, Kuri or by any other name by or under which a person responsible for the conduct of the chit enters into an agreement with a specified number of persons that every one of them shall subscribe a certain sum of money (or certain quantity of grain instead) by way of periodical instalments for a definite period and that each such subscriber shall, in his turn, as determined by lot or by auction or by tender or in such other manner as may be provided for in the chit agreement, be entitled to a prize amount. Explanation.-In this clause "prize amount" shall mean the amount, by whatever name called, arrived at by deducting from out of the total amount paid or payable at each instalment by all the subscribers.

Money Circulation Scheme means any scheme, by whatever name called, for the making of quick or easy money, or for the receipt of any money or valuable thing as the consideration for a promise to pay money, on any event or contingency relative or applicable to the enrolment of members into the scheme, whether or not such money or thing is derived from the entrance money of the members of such scheme or periodical subscriptions. A direct selling company or MLM is often treated as a chit fund or money circulation scheme by the layman. It had happened because there was no law to regulate the direct selling companies in India. The major difference between an MLM and chit funds/money circulation scheme is that *an MLM do not pay for a recruitment/ referral of a new member it only pays on sales volume whether the other two pay on referrals/recruitment of new members.*

The IDSA was incorporated in Mumbai in 1996 and moved to its registered office to New Delhi in 1998. It is a self-regulatory body which acts as an interface between the industry and policy-making bodies of the Government facilitating the cause of Direct Selling Industry in India. Before the inception of MODEL GUIDELINES ON DIRECT SELLING, it was IDSA that was maintaining the legal & ethical standards in the direct selling. Since at the moment we only have a guideline and don't have an

ACT which can regulate the direct selling operations in India it is still the IDSA that prescribes standard and procedure for incorporating a direct selling company.

Industry Reaction on New Guidelines

“We wholeheartedly welcome the new guidelines to regulate Indian direct selling companies, issued by the *Ministry of Consumer Affairs* to safeguard the interests of consumers, as well as help protect ethical direct selling companies,” said *Dr. Mahesh Gupta, President, PHD Chamber of Commerce and Industry*.

Mr. Sameer Rastogi, Managing Partner India Juris and Chief Advisor Venture Catalyst said “After a long time government has cleared the regulatory scenario in Multi-Level Marketing and Direct Selling sector which will help in the growth of Multi-Level Marketing and Direct Selling sector without any fear and uncertainty. The guidelines provide clarity to the Multi-Level Marketing and Direct Selling Companies at the same time safety to the consumers and direct sellers.”.....”The guidelines prohibits operation of Pyramid Scheme and the direct seller should not receive remuneration or incentive for the recruitment or enrolment of new participants, a clarification is required here whether incentive of recruitment or enrolment of new participants excludes the commission received from the sales done by new participants”.

“*Indian Direct Selling Association welcomes the guidelines on Direct Selling with open arms. This will be very encouraging for the development of the Industry. We wish to thank the government, especially, the Ministry of Consumer Affairs for coming out with guidelines for the direct selling industry. In the absence of proper policy or guidelines, numerous fraudulent players have been taking advantage of the situation. Now that the guidelines are out, it shall address the current concerns of the industry and provide much needed impetus.*” – *Jitendra Jagota, Chairman, Indian Direct Selling Association (IDSA)*.

“*The guidelines on direct selling, issued by the Ministry of Consumer Affairs, represent an important step which will safeguard the interests of consumers, as well as identify and help protect ethical direct selling companies. We also believe that legislation will help the industry actualize its potential. We, along with others in the industry plan to continue to engage with the central government in pursuit of appropriate regulations for the direct selling industry.*” – *Anshu Budhraj, CEO, Amway India*

“*We are confident these guidelines will certainly help in bringing in regulatory clarity for the sector. FICCI is positive that the state governments will implement these guidelines as the sector is a major contributor towards employment creation and tax revenue*” – *Dr. A Didar Singh, Secretary General, FICCI*

Conclusion

After these new guidelines IDSA and companies involved in this industry are happy and hoping for a bright future. As the law is clear and the companies who are running pyramid scheme can be identified clearly. And the best part is customers are going to get benefitted in the long run. The popularity of direct selling continues to grow. Direct Selling industry has many players in India. One can judge them by looking at the proposition. There is no free lunch, and the business plans mentioning quick money without effort is definitely a fraud. IDSA clearly specifies the working structure of Ponzi scheme or pyramid schemes and genuine multilevel marketing firms. As the implementations of these guidelines remains with state government, their role is important as this sector has immense growth and employment generation capacity.

We can conclude that with the advent of technology and social media marketing direct selling has a strong future. You can see that traditional retail is in a decline, eg: Sears and Toys R US, two of the big names closing. This is being replaced by direct selling, referral or affiliate marketing, drop shipping and online ecommerce

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MEDIATION IN RAPE CASES: PROBLEMS AND PROSPECTS

BIBHA TRIPATHI*

Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Bibha Tripathi* the author of the research paper entitled MEDIATION IN RAPE CASES: PROBLEMS AND PROSPECTS declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This research paper is my original work and no part of it or it's similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

The Problem

We are witnessing a sharp criticism in and out of the legal circles on the Madras High Court's single judge's order¹ directing a case of rape to be referred for mediation. V. Suresh, National General Secretary, Peoples' Union for Civil Liberties (PUCL), said, "It is a retrograde order. It is against the very fundamentals of rape jurisprudence. Rape cases cannot be settled outside the frame of law. Directing mediation to a rape victim only unleashes violence once again on the victim."

Noted advocate and a member of the PUCL, Nagasaila, found the order "untenable and illegal," and wondered how such an order could be passed. "Whenever a crime is committed, it is perceived no longer as a crime against the individual but against the society. That's why the State is the respondent in these cases. Punishments are a deterrent against crimes. This order hits at the very base of jurisprudence," she said. Terming the order "distasteful," she also said that such an order could not be passed without knowing the mindset of the victim.

Though the Supreme Court has tried to set at rest the controversy by ordering in State of M.P v. Madanlal² that in a case of rape or attempt of rape, the conception of compromise under no circumstances can really be thought of. These are crimes against the body of a woman which is her own temple. These are offences which suffocate the breath of life and sully the reputation.

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Against this backdrop, unlike a possessive feminist or an activist of women's rights, the author is honestly trying to discern the issue of mediation and the validity of arguments rejecting the scope of mediation in rape cases.

Initially the questions have been put against the judgment that whether one can pass order of mediation when the application is filed only for granting the bail? Or whether an order of mediation can be passed without asking the victim of the crime? From victimological perspective, the second question sounds relevant because it intends to advocate victim's say in cases of rape where she becomes merely a prosecution witness after lodging a complaint on rape. So far as rape is concerned, it is understood by the academia either as violent act or as sexual act³. Though in both the cases it is a gross violation of victim's human rights so victims approach must be given preference over the legal crisis. So far as victim's version is concerned, it sounds something different from that which is perceived and highlighted by the media⁴. She is worried not only about herself but about her daughter born out of rape. This and other cases like this simultaneously raise two issues first, of the victim itself and second of the child born out of rape. Victims of rape simply wish to be taken care of themselves as well as their children if they are born out of such rape.

Against this backdrop we can analyse two recent judgments of Hon'ble Supreme Court first, State of M.P. v. Madanlal⁵ and second, A B C v. N C T Delhi⁶. In the case of State of M.P. v. Madanlal Hon'ble Supreme Court said very emphatically that in a case of rape or attempt of rape, the conception of compromise under no circumstances can really be thought of. These are crimes against the body of a woman which is her own temple.

These are offences which suffocate the breath of life and sully the reputation. And reputation, needless to emphasise, is the richest jewel one can conceive of in life. No one would allow it to be extinguished. When a human frame is defiled, the "purest treasure", is lost. Dignity of a woman is a part of her non-perishable and immortal self and no one should ever think of painting it in clay. There cannot be a compromise or settlement as it would be against her honour which matters the most. It is sacrosanct. Sometimes solace is given that the perpetrator of the crime has acceded to enter into wedlock with her which is nothing but putting pressure in an adroit manner; and we say with emphasis that the Courts are to remain absolutely away from this subterfuge to adopt a soft approach to the case, for any kind of liberal approach has to be put in the compartment of spectacular error. Or to put it differently, it would be in the realm of a sanctuary of error.

We are compelled to say so as such an attitude reflects lack of sensibility towards the dignity, of a woman. Any kind of liberal approach or thought of mediation in this regard is thoroughly and completely sans legal permissibility. While dismissing the judgment of Madras High Court on converting the case from rape to sexual assault under section 354 IPC and allowing the parties to compromise, the Supreme Court also discussed the much debated case of Baldev Singh v. State of Punjab.⁷ In this case though the courts below awarded a sentence of ten years, taking note of the facts that the occurrence was 14 years old, the appellants therein had undergone about 3½ years of imprisonment, the prosecutrix and the appellants married (not to each other) and entered into a compromise, this Court, while considering peculiar circumstances, reduced the sentence to the period already undergone, but enhanced the fine from Rs. 1000 to Rs. 50,000. In Ravindra v. State of Madhya Pradesh⁸ the incident was 20 years old and the fact that the parties were married and have entered into a compromise, were considered as adequate and special reasons. Therefore, although the Supreme Court uphold the conviction of the appellant but reduced the sentence to the period already undergone by the appellant.

But this time the Supreme Court in Madanlal case observed that Baldev Singh and Ravindra have to be confined to the facts of the said cases and are not to be regarded as binding precedents.

Issue of child born out of wedlock

The abovementioned judgment of Supreme Court has dealt with the issue of mediation in rape case but has not bothered about the upbringing of the child, as to who will take the responsibility of the child. There is another judgment of the apex court namely ABC v. NCT Delhi⁹ where the mother was well educated, gainfully employed and financially secure. She gave birth to her son in 2010, and has subsequently raised him without any assistance from or involvement of his putative father. In that case the court allowed the mother as her sole guardian and quoted all relevant provisions of the world in general and India in particular. The ABC case is deliberately referred in the article to mention that in this case the putative father was already married with someone else and the court was of the opinion that dragging him in the guardianship issue will badly affect his family¹⁰. Therefore, since he has not shown any concern to the child born out of wedlock, the mother should be held responsible and entitle for all rights related with the child. It is submitted in the article that such persons should not be set free. There must be some mechanism to deal stringently with such persons.

Practice of mediation in rape case as a tool of empowering victims

Mediation is a process through which the woman and the offender are given the opportunity to have a dialog, facilitated by one or two impartial third persons. A concrete mediation is sometimes conducted as a dialog between the two parties, but more often the dialog takes place through correspondence. The efforts of the staff at The Centre for Sexual Assault in Copenhagen all aim at empowering women exposed to sexual coercion in order that further victimization does not occur and they may regain control over their lives. With this in mind, and as a part of a research project, we have recently started to offer mediation as one of the ways in which women may reestablish their self-confidence through control over their lives and the renewal of their sense of justice¹¹.

Scope of mediation in cases of rape

There are multiple dimensions of rape now a days. One of them is having consensual relationship under the false promise of marriage. In that case the dispute arises only after the denial of marriage by the person. Therefore, it is submitted that in that type of cases mediation can play significant role as observed by the Supreme Court in Arun Goyal case. Though the women's rights activists have shown their disapproval in those cases too¹².

Rape as violent act or sexual act

Rape¹³, a *mala-in se* crime has a chequered history of interpretation. It has been interpreted as most hated crime, a gender neutral crime, a social problem and as a violent crime. Each interpretation is linked with the views with which woman has been seen and analyzed in a traditional/progressive/feminist/criminological perspective.

Authorities are divided on the issue as to rape should be seen as violent act or sexual act. The Schwendingers, as Marxist feminists, are generally critical to feminist theories. They view rape mainly as a violent crime which occurs not because men are sexually deprived but because men have learnt to act violently¹⁴. Whereas Mackinnon argues that sexuality is “ a social sphere of male power of which forced sex is paradigmatic”¹⁵.

Patriarchal notion of rape

The feminist scholars identify some observations of the court as typically patriarchal at some point of time and at the other point of time they also advocate the same opinion. Very often the statement that “rape is worse than death” is considered as a patriarchal notion but while explaining the brutality and violation of women’s rights the feminist scholars used to say that it is worse than death.

Concluding observations

In the end it is submitted that the way Supreme Court has reacted in Madanlal case leaving no space of mediation in rape case is neither proper nor practical rather principled and unconcerned. If legislature could not make marital rape with a wife of adult age and left the picture gloomy than in the cases where sexual relation is maintained under the promise of marriage and refusal for the same occurs. Then in such situations parties can be asked to resolve the issue by way of mediation. The paper ends with a caveat that in all the cases victims point of view and her opinion should be given utmost priority and after getting assurance that there is neither coercion nor undue influence on the part of the accused for the compromise.

FOOTNOTES

¹*Dennis S. Jesudasan, Judge’s Order Retrograde: Activists*, The Hindu, June 25, 2015

²*Deepak Mishra and Prafull C Pant*, Decided on July 1, 2015

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⁴*Supra note 1*

⁵*Decided on 1st July, 2015*

⁶*Decided on 6th July, 2015*

⁷*(2011) 13 SCC 705*

⁸*(2015) 4 SCC 491*

⁹*Decided on 6th July, 2015*

¹⁰*Supra not 9*

¹¹MADSEN, KARIN STEN (2004); *Mediation in Rape - is that possible? (Mediation as a way of empowering women exposed to sexual coercion)* Oslo: Nordic Conference on Mediation and Conflict Management (Nordisk Forum for Megling og Konflikthåndtering), www.restorativejustice.org/articlesdb/articles/5567

¹²http://www.dnaindia.com/india/report_rapist-pays-victim-goes-free_1353515

¹³It is understood that sexual offenders can be male or female, and victims can be of either sex; however, throughout this chapter, offenders will be referred to as female, unless otherwise noted.

¹⁴RONALD J. BERGER & PATRICIA SEARLES, *Victim Offender Interaction in Rape: Victimological, Situational, and Feminist Perspectives*, *Women’s Studies Quarterly*, Vol. 13, No. ¾, Teaching About Women and Violence (Fall Winter, 1985) at 11 www.jstor.org/stable/25164241 accessed on 21/04/2014

¹⁵*Id at 12*

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RICHARDSON, G. (1985), 'Judicial Intervention in Prison Life', in M. Maguire, J. Vagg and R. Morgan, eds., *Accountability and Prisons*, 113-54. London: Tavistock.

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