The Health Consequences Of Child Labour In Sri Lanka

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Abstract: There are various cases and impacts of child labour and it has been a universal problem and remains as one of polemical challenge faced by the world. The problem of child labour not only causes to damage their physical and mental health but also their education right, freedom, development of childhood etc. Both developing countries and developed countries are faced to the phenomenon of child labour. 28 % of Working children have faced injuries or fallen ill at least once in a year due to work in Sri Lanka. The main objective of the study is to examine the impact of child labours on their health. 200 primary data were collected in Peta, Sri Lanka using simple random sampling method. Binary Logistic regression was employed to identify the health effects of child labour. According to the study child labors have faced some illnesses or injuries due to employment. Hours of working, carrying of heavy loads, operate heavy machines and equipment, place of work and expose to things were highly correlated with physical harm of child labors. Carrying heavy load, operate heavy machines and equipment and working place highly affected to physical harm of child labor. Many of them are employed on the street as street vendors, construction sites, factory and hotel and restaurant. Injuries and physical harms are highly related to the working place. Therefor the study recommends to empower the families, provide the better formal education and vocational training to overcome this issue.

Key words: child labour, health effects, Sri Lanka

1. BACKGROUND OF THE STUDY

A person who are below the age of 14 years or who has not attained to the age of 14 years define child. The United Nations conversion of the right of the child defines as "a human being below the age of 18 years unless under the law applicable to like child majority is attained earlier". Children have fewer rights than adults and unable to make serious decisions and legally must be under the care of a responsible person. The International Programme on the Eliminations of child labour is work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development. "Children between the ages of twelve to fourteen are permitted to "light work". The job cannot be hazardous. It must not require more than fourteen hours per week. Teenagers between the ages of fifteen to seventeen can work up to forty-three hours per week. They become child labours it they work more than forty - three hours per week". [10]. There are various cases and impacts of child labour and it has been a universal problem and remains as one of polemical challenge faced by the world. The problem of child labour not only causes to damage their physical and mental health but also their education right, freedom, development of childhood etc.

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Both developing countries and developed countries are faced to the phenomenon of child labour. The developing countries are recorded the higher rate of children employment than developed countries. However child labour is not a new phenomenon, it has existed in the world since ancient times. Child labour emerged as an issue during the industrial revolution when children were forced to work in dangerous condition up to 12 years per day. In England 50per cent of children between the age of 5 and 15 years were working in 1860. Child labour continues to today and the highest number of child labourers is in Asia - Pacific region and the largest percentage of children working as proportion of child population in Sub - Sahara Africa. It can be mining, factory work, agriculture, prostitution, quarrying, helping parents' business doing their own business, someone work as guides for tourist and etc. Most of child labours are occurred in the informal sector [9]. The ILO has estimated that 217.7 million children between ages of 5 to 17 are engaged in that child labour around the world of these 126.3 million are caught in the worst form of child labour. Approximately 122.3 million children ages 5 to 14 are economically active in Asia and the Pacific, 49.3 million in Sub-Sahara Africa, 5.7 million in Latin America and the Caribbean and 13.4 million in other regions. Among working children ages 5 to 14 in the world 69 per cent are employed in the agricultural sector, 9 per cent are employed in the industrial sector and the remaining 22 per cent are employed in the services sector. The Asia and Pacific region has the highest number of working children worldwide between the economically active ages of 5 to 14. Many worst form of child labour are the problem in the region including child trafficking, commercial sexual exploitation, bounded child labour, child domestic works, hazardous child labour and recruitment and use of children for armed conflict or drug trafficking. A large number of children in areas affected by the Tsunami in Indonesia, Thailand, Sri Lanka and India are entering labour. In addition, high tolerances for child labour in many countries are resulted to expansion of child labour. According to Sri Lanka Child Activity Survey 2008/09, the total Child Labour is 107,259 or 2.5 per cent of total child population. About 70 per cent of the working children work less than 14 hours in a week, in other words less than 2

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hours a day on average. Over 55.4 per cent of working children work at his or her family dwelling. Out of 557,599 working children, 86,428 (15.5 per cent) children work for payments, either while attending school or not attending school. In Sri Lanka one of out of every eight children is economically active often poverty is prompted families to make their children at work. The child employment is hard, cruel and violates their rights of education, health protection from work that is hazardous or exploitative. A large number of children in Sri Lanka work in unregistered concern such as hotels, boutiques, textiles, grocery shop, factory, on the street, other services sector enterprises and agriculture sector. This seems to be the problem of Sri Lanka as well in child employment.

2. PROBLEM STATEMENT

Children have to face many injuries or health related problems throughout their working time and it would be a heavy burden to their future life. According to child labour survey in 2008/2009 hazardous child labour of 63,916 is a part of total Child labour of 107,259 and expressed as a percentage of total child population in the Sri Lanka and Child Labour would represent 2.5 % and Hazardous child labour1.5%. This investigation is identified that what are the impacts of child labour on their health.

3. OBJECTIVES OF THE STUDY

The main objective of the study is to examine the impact of child labours on their health.

4. LITERATURE REVIEW

Tungesvic [8] investigated the relationship in between child employment and diseases, natural disaster and outbreak diseases and found there is a positive relationship with above mentioned factors and child labour. Diseases of household head or elders caused to collapse the income generation in the family and thus children those who are in the schooling ages have to out of school and it causes to increase the level of formal or non-formal employment condition of the children. Francavilla and Leyon [5] found there were problems with the causality and health and claims of the children. As well as the author argued that there is not clear connection between household chores and the health of children compared with the full time child employment activities which affected on health of children. Richard and Weiner [6] concluded that the higher child employment due to migrant children ethic minority. According to them child prostitution is main problem regarding working children and youth. According to O'Donnell & Doorslaer [7] is there is clear evidence of negative impact of child labour in agriculture sector on health of children. Children those who involved in working activities are higher probability to have work related illness later. According to the Forastieri [4] many of health risk damaged to the health of the children. Exposure to pesticides, chemicals, dusts, mining and quarrying, manufacturing increase the risk of developing cancers and variety of diseases. Further, a factor such as heavy lifting causes to muscle problems in later. The employment of children may cause to develop the chronic health problems. Beswik and White [1] found that there were negative outcomes with working hours and health of the child labours. More illnesses, high injury rate or increase the mortality rate due to the higher level of working hours. Authors are pointed out the link between long hours of working with negative psychological health outcomes, heart related diseases, diabetes and the workplace accidents. There is also link between long working hours and dangerous health behavior such as smoking, alcohol and drugs abuse. This effect is strong when working hours exceed more than 48-50 per week.

5. METHODOLOGY

The Study based on primary data. Therefore, data were collected using questionnaires filled by sample of area.200 primary data were collected from child labors from the targeted area. Simple random sampling method was used to collect data from study area. (A child who engaged in some economic activities over last week more than 14 hours, identified as a child labor). Charts, graphs and tables were used to represent the qualitative and quantitative data. and Binary Logistic regression was employed.

$$i = Pr(Y_i = 1/X_i = X_i) = \frac{exp(B_0 + B_1X_i)}{1 + exp(B_{0+} B_1X_i)}$$

Y = Binary responsible variable B_0 , $B_1 = Parameters$ Yi = If the trait is present in observation i (Physical damage due to child labour = 1 and No physical damage due to child labour = 0)

 $X = (X_1, X_2, X_k)$ are explanatory (independent) variables and linear in the parameters including Working Place, Working Hours, operate of machines or heavy equipment, Pottering (caring heavy load), Expose to things.

6. RESULT AND DISCUSSION

This section discusses the relationship between child labour activities and impact of those activities on their health with different situations.

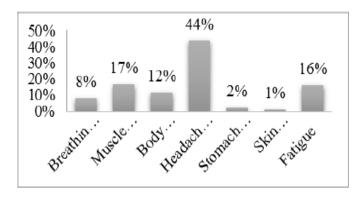


Fig 1: Suffered from illness or injuries due to employment Source: Sample survey, 2015

According to above figure, many child labours suffered from headache and fever, it is about 44%. Muscle pains and fatigue in second and third proportion to negatively to the health of child labours. Breathing problems, headache and fever rate is increase where the child labours work on the street and construction sites. As well as 33% of muscle pains and fatigue due to carrying heavy loads and more long hours of working specially in factory and hotel and restaurant

sector. 12% of body injuries are raised where the area of factory and construction areas.

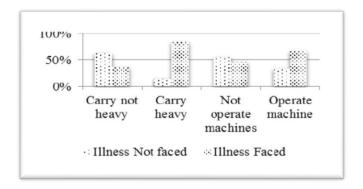


Fig 2: facing illnesses of child labour due to carrying loads and operate machines and equipment Source: Sample survey, 2015

Figure 2 implies that carrying heavy loads are resulted to make illness of child by 85% and 15% of child those who carrying heavy loads not affected to face injuries. 63% of child labours not faced any illness and not carrying heavy loads. The figure stated that 37% of child labours have faced to illness without carrying heavy loads. According to that carrying of loads that not so heavy result to increase the lower level of illnesses, but approximately 1/3 from total of carrying not heavy loads are faced to illnesses. The figure implies that operate of heavy machines and equipment is resulted to have 67% of impact on child labours. Further the difference of illness faced due to operate machines and equipment and not operate has not more variations. This because there are some another factors that are affected to make illnesses on employment of child labours such as working place, working hours, expose to things which are negatively affected to the children's health.

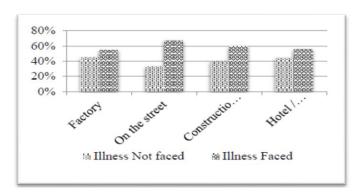


Fig3: Comparison of facing or not illnesses of child labour on working places

Source: Sample survey, 2015

The higher proportion (67%) of illness faced by the working children on the street, it consists some of mobile and permanent places on the street. The second highest level of illnesses faced by the working children in construction sites it represents 60%, the one of major reason for that is poor security conditions around the working place. Hotel and restaurant sector recorded 56% of children who faced to the illnesses. Considering the factory sector it recorded a highest

rate of employment which is consist with not illness faced by the child labours. It is due to some form of security and factory management functions. As well as many of children employed under the basis of temporary position filling.

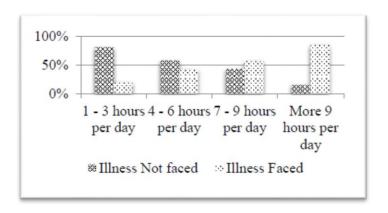


Fig 4: Comparison of facing or not illnesses of child labour on working hours per day

Source: Sample survey, 2015

There is a positive relationship in between illnesses and hours of working. The higher percent of child labours faced illness in between 9 or more working hours per day about 85%. The 4-6 and 7-9 working hours per day represent the possibility to having illnesses due to employment by 42% and 57% respectively. Hours group of 1-3 represent the lowest possibility to make illnesses or injuries on employment. That means lower hours of work not result to make physical harm to child labours as well as many of child labours are employed to filling temporary position and many of them are employed on the street, construction sites. They have a lower level of skills and training on employment and above mentioned reasons are interrelated with hours of work and illnesses or physical harms on employment. Bequele and Myers [2] explained that working long hours also takes greater physical problems to children. As well as Beswik and White[1] represented that long hours of working creates negative psychological health outcomes, heart related diseases and the workplace accidents. There is also link between long working hours and health. The effect may be high when increase the working hours more. The same result is shown by the study as past studies.

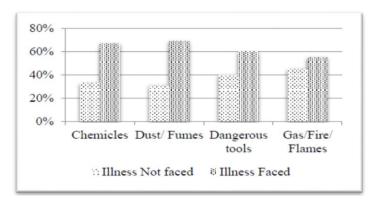


Fig 5: Comparison of facing or not illnesses of child labour on expose to things

Source: Sample survey, 2015

According to above figure, the higher difference of percentage of child labours on faced and not faced illnesses resulted to expose to dust and fumes (38%). The reason can be identified clearly as difference of working places. Many of employed children have done employment on the street and it resulted to expose to dust, fumes, too hot or cold environment. Chemicals are also affected to 67% to the illnesses and the proportion of not face illnesses is 33%, it represents the second highest variation to the illnesses. Factory workers highly affected problems on chemicals and same contribution by workers those who work in construction areas. Illnesses faced by working children due to expose of dangerous tools and gas, fire and flames represent the 60% and 55% respectively. It is 20% and 10% differences with the group those who not faced illnesses or injuries on working. Forastieri [5] represented that expose to dust damaged make health risk and implies that it would be a reason to cancer problems of the child labours. Thus the results of the study are same as past research.

6.1 Binary logistic regression result

The study employed the binary logistic model to identify the factors which affect to health on child labor. Binary logistic model followed several steps and check the interaction of variables and identified final model as bellow.

6.2 Fit the Model for the factors affecting to the physical damaged of child labour due to employment. First Step-Stepwise (Foreword LR) method was used for the identifying the best fitted model for the dataset. First step of the analysis is fit the null model. P-value of the constant is significance at 5% level of significance. When null model is significance mean deviation is 0.405.

$$logit(\pi) = \beta_0$$

TABLE 1: Categories of the variable

	β	Wald	Sig.	Exp(B)
Constant	.405	1.973	.016	1.500

Source: Sample survey, 2015

Null model is significance at 5% level of significance because p-value (0.016) is less than 0.05. Null model is not enough for describing the logistic regression model. Therefore, the significance variables among the chi-square test had entered to the model one by one.

Second Step-In this step identifies the other significance variables with null model.

6.3 Model with Hours of work

The logistic regression model is identifying the relationship between hours of work and physical damage to child labour.

$$logit(\pi_i) = \beta_0 + \beta_i^{4 \; hours} + \beta_i^{5 \; hours} + \beta_i^{8 \; hours} \; + \beta_i^{9 \; hours}$$

TABLE 2: Model with hours of work

		В	Wald	P value	Exp(B)
Hours o	of		4.845	.183	
5 hours		1.216	2.598	.107	3.375
8 hours		1.910	4.527	.033	6.754
9 hours		2.014	4.928	.099	7.493
Constant		811	1.821	.177	.444

Source: Sample survey, 2015

Reference category: 4 hours

Accoring to the above table, due to zero the first category of the variable of 'hours of working' which indicate the '4 hours of work', it leads to increase the whole parameter P-value more than 0.05 (.183> 0.05). Thus, the variable of 'hours of working' is not significance on the model of one variable. The survey data not represent that physical harm or damage not result on the hours of work. This may due to some level of light work and temporary working schedules of children. The term of 'light work' implies that is not likely to be harmful health or development of children. As well as absolute limit on the number of hours of work not harmful to children's physical.

6.4 Model with carrying heavy loads

The logistic regression model is identifying the relationship between carrying heavy loads and physical damage to child labour.

$$logit(\pi_i) = \beta_0 + \beta_i^{Yes} + \beta_i^{No}$$

TABLE 3: Model with carrying heavy loads

	В	Wald	P value	Exp(B)
yes	1.540	6.114	.013	4.664
Constant	1.204	6.690	.010	3.333

Source: Sample survey, 2015

Reference category: no

According to the above table 4.2.4.2, due to zero the first category of the variable of 'carrying heavy loads' is 'No', it leads to decrease the whole parameter P-value less than 0.05 (.013< 0.05). Thus, the variable of 'carrying heavy loads' is significance on the model of one variable. The possibility of physical damage on child labour due to carrying heavy loads is increased by 4 times.

6.5 Model with operate heavy machines and equipment

The logistic regression model is identifying the relationship between operate heavy machines and equipment and physical damage to child labour.

$$logit(\pi_i) = \beta_0 + \beta_i^{Yes} + \beta_i^{No}$$

TABLE 4: Model with operate heavy machines and equipment

	В	Wald	P value	Exp(B)
yes	1.631	6.814	.009	5.108
Constant	1.145	6.964	.008	3.143

Source: Sample survey, 2015

According to the above table, due to zero the first category of the variable of 'operate heavy machines and equipment' is 'No', it leads to decrease the whole parameter P - value less than 0.05 (.009< 0.05). Thus, the variable of 'operate heavy machines and equipment' is significance on the model of one variable. The possibility of physical damage on child labour due to operate heavy machines and equipment is increased by 5 times.Some lower level of training and skills on operate machines resulted to increase the possibility to injuries.

6.6 Model with Expose to things

The logistic regression model is identifying the relationship between expose to things and physical damage to child labour.

$$\begin{split} logit(\pi_i) = \beta_0 + \beta_i^{chemicles} + \beta_i^{dust/fumes} + \beta_i^{dangerous \ tools} \\ + \beta_i^{gas/fire/flames} \end{split}$$

TABLE 5: Model with expose to things

variable	В	Wald	Р	Exp(
			value	B)
Expose things		8.841	.031	
Dust / Fumes	.511	.391	.532	1.667
Dangerous tools (knives etc)	-1.569	2.481	.115	.208
Gas / Fire / Flames	1.609	2.727	.099	5.000
Constant	.182	.091	.763	1.200

Source: Sample survey, 2015

Reference category: Chemical

According to the above table, due to zero the first category of the variable of 'expose to things' which indicate the 'Chemicals', it leads to decrease the whole parameter P-value less than 0.05 (.031< 0.05). Thus, the variable of 'expose to things' is significance on the model of one variable. Further the categories of 'Dust / Fumes', 'Dangerous tools (knives etc.) ', 'Gas / Fire / Flames' represent the higher p — value than 0.05. It indicates that there is no significance of above mentioned categories on expose of things of child employment as one by one.The working place and hours of working are correlated with this variable, thus it is a heavy burden to children's physical condition.

6.7 Model with place of work

The logistic regression model is identifying the relationship between place of work and physical damage to child labour.

$$\begin{split} logit(\pi_i) &= \beta_0 + \beta_i^{factory} + \beta_i^{on \ the \ street} + \beta_i^{construction \ sites} \\ &+ \beta_i^{hotel/\ restaurant} \end{split}$$

TABLE 6: Model with place of work

Variable	В	Wald	P value	Exp(B)
Place of work		8.841	.031	
Factory	1.569	2.481	.115	4.800
On the street	2.079	4.675	.031	8.000
Construction sites	3.178	8.359	.004	24.00 0
Constant	-1.386	3.075	.080.	.250

Source: Sample survey, 2015

Reference category: Hotel / Restaurant

According to the above table, due to zero the first category of the variable of 'place of work' which indicate the 'hotel / restaurant', it leads to decrease the whole parameter P - valueless than 0.05 (.031> 0.05). Thus, the variable of 'Hotel / Restaurant' is significance on the model of one variable. Further the category of 'Factory' represents the higher p – value than 0.05. It indicates that there is no significance of above mentioned category on place of work to make physical damage of child employment. The possibility of physical damage of child labour on place of working such as 'On the street' and 'Construction sites' are increased by 8 times and 24 times respectively to the pace of work of Hotel / Restaurant.

6.8 Model with more variables

Used whole variables which are significance with null model related to illness and child labour.

6.9 Model with two variables

In this step study on models which more than one variable that are significance with null model. First, select the best model with two variables. 'Carrying heavy loads (a)' and 'Operate heavy machines and equipment (b)' are identified as the best model.

$$logit(\pi_i) = \beta_0 + \beta_i^a + \beta_i^b$$

TABLE 7: Best model with two variables

variable	В	Wald	Р	Exp(B)
			value	
Carrying heavy	1.684	5.889	.015	5.388
loads (yes)				
Operate heavy	1.769	6.543	.011	5.865
machines and				
equipment				
(yes)				
Constant	2.082	10.186	.001	8.017

Source: Sample survey, 2015

Reference category: No

6.10 Saturated model with three variables

Carrying heavy loads (a), Operate heavy machines and equipment (b) and Place of work (c) are selected for the

model which includes three variables according to the lowest deviance statistic as follows.

$$logit(\pi_i) = \beta_0 + \beta_i^a + \beta_i^b + \beta_k^c$$

TABLE 8: Saturated model with three variables

Variable	В	Wald	Р	Exp(B)
			value	
Carrying heavy	2.155	5.751	.016	8.628
loads(yes)				
Ref:No				
Operate machines	1.939	5.508	.019	6.951
and equipment				
(yes)				
Ref:No				
Place of work		8.155	.043	
Ref: Hotel /				
Restaurant				
Factory	2.769	4.313	.038	15.937
On the street	2.611	4.668	.031	13.607
Construction sites	3.732	7.881	.005	41.779
Constant	.995	7.009	.004	.993

Source: Sample survey, 2015

The model which includes only three variables are identified as saturated model among the all variables.

- a Carrying heavy loads
- b Operate heavy machines and equipment
- c Place of work

6.11 Fourth step-The best logistic regression model with interactions

This determined the identification of interaction among independent variables after the selection of saturated logistic regression model. Investigation of suitability of the model with two interactions which identified has 3 independent variables in the analysis. The model which has 3 independent variables could have $^3\text{C}_2\text{number}$ of two interactions.

TABLE 9: The best logistic regression model with one twoway interaction

Model	Interaction	Р
		value
$logit(\pi) = \beta + \beta^a + \beta^b$	$+\beta_{ij}^{a*b}$	0.099
$logit(\pi_x) = \beta_0 + \beta_i^a + \beta_j^b$	$+\beta_{ik}^{a*c}$	0.601
$+ \beta_k^c$	$+\beta_{ii}^{b*c}$	0.700

Source: Sample survey, 2015

According to above 9 table, there is no any model which includes two way interactions. P-values are greater than 0.05 considering all the two way interactions. It is unable to build up model which includes the interactions in this data set. Therefore, the best logistic regression model to identifying the health impact and physical damage of child labour on their employment is 'logistic regression model which not any interaction' as follows.

$$logit(\pi_i) = \beta_0 + \beta_i^a + \beta_i^b + \beta_k^c$$

The best fitted logistic regression model

 $logit(\pi_x) = 0.955 + 2.155^{yes} + 1.939^{yes} + 2.769^{factory} + 2.611^{onthe}$ street $+3.732^{construction}$ sites

TABLE 10: The best fitted logistic regression model

	J			
Variable	Parameters	В	Р	Exp(B)
			value	
a	Yes	2.155	.016	8.628
	Ref:No			
b	Yes	1.939	.019	6.951
	Ref:No			
С	Place of work		.043	
	Ref: Hotel /			
	Restaurant			
	Factory	2.769	.038	15.937
	On the street	2.611	.031	13.607
	Construction	3.732	.005	41.779
	sites			
	Constant	.995	.004	.993

Source: Sample survey, 2015

According to the represents of above logistic regression model the significance variables of carrying heavy loads, operate heavy machines and equipment and place of work are affected to the physical damages of children those who are engaging in employment. The possibility of physical damage on child labour due to carrying heavy loads is increased by 96% with respectively to the not physical damage due to carrying heavy loads on child employment. The possibility of physical damage due to operate heavy machines and equipment of child labour are increased by 94% with respectively to the term of no physical damage due to operate heavy machines and equipment on child employment. Due to zero the first category of the variable of 'place of work' which indicates the 'hotel / restaurant', it leads to increase physical damages on employment by 96% in the category of Factory. Further it results to increase 97% of physical damages in the category of 'on the street'. Further increase the physical damages due to employment in construction sites by 99%.

7. Conclusion

Child labor is one of the burning issues in both developing and developed countries. The study attempted to identify the health risk of child labor activities. According to the study child labors have faced some illnesses or injuries due to employment. Hours of working, carrying of heavy loads, operate heavy machines and equipment, place of work and expose to things were highly correlated with physical harm of child labors. Carrying heavy load, operate heavy machines and equipment and working place highly affected to physical harm of child labor. Many of them are employed on the street as street vendors, construction sites, factory and hotel and restaurant. Injuries and physical harms are highly related to the working place. Based on the study findings, the following recommendations can be suggested. Due to poverty of the family, the people should be empowered economically. Lower level of income is the main obstacle to

poverty of the family. Low income groups highly engaged in self-employment and small businesses therefore formal micro finance should be extended through banks and other financial institutes to expand and improve their businesses. Education is the key to ending the exploitation of child labour. Attractive education system improves the quality and relevance of schooling. Children who attend quality school are less likely to be involved in child labour. To achieve this, quality compulsory education is needed. For that authorities should provide infrastructure facilities and get ready them with qualified teachers. Thus poor families will be willing to send their children to school instead any employment. The government should develop vocational and technical education with school to improve youth with employable skills to prepare them for adulthood. It should not limit only children those who are in school, it should focus those who dropped out form school. National legislation and policies against child labour in Sri Lanka considered that the age below 14 years and doing any employment as a child labours. Child more than 14 years old not considered as child labours. The international laws defined the age group of child labours between 5- 17. Therefore policies should restructure and should be functioned well. government policy also should give special focus to the sectors which are prime area for child workers.

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