

**Formative Research Project (FRP) for
School Sector Reform Program (SSRP)
in Nepal**

**LONGITUDINAL STUDY ON SYSTEM
INDICATORS**

A Study Jointly Conducted by:

Department of Education

and

Research Centre for Educational Innovation and Development (CERID)

Tribhuvan University



Research Centre for Educational Innovation and Development (CERID)

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Acronyms and Abbreviations

CERID	Research Centre for Educational Innovation and Development
DoE	Department of Education
EFA	Education for All
FRP	Formative Research Project
GoN	Government of Nepal
LongSIS	Longitudinal Study on System Indicators
MoE	Ministry of Education
MS	Micro Soft
PTA	Parent Teacher Association
SIP	School Improvement Plan
SSRP	School Sector Reform Plan/Program

Executive Summary

Government of Nepal implemented School Sector Reform Program (SSRP) 2009-2015 in Nepal through Ministry of Education/ Department of Education. Formative Research Project (FRP) for School Sector Reform Program (SSRP) has been commenced jointly by Department of Education (DoE) and Research Centre for Educational Innovation and Development (CERID), Tribhuvan University. In this context, Longitudinal Study on System Indicators (LongSIS) is a part of the project has been continued since the inception of the project.

The enrolment of students as new entrants in Grade I was in a decreasing trend for last few years. It can be clearly seen that the flow of the students from Grade I to Grade II appears to be the most difficult hurdle for all the cohorts as it shows the lowest flow.

The percentage of students reaching Grade V, Grade VIII and Grade X in subsequent years without repeating any grades was found around twenty, eleven and eight percent irrespective of the school leaving students. The percentage of girl students reaching to these grades in the subsequent years was higher than boys.

The academic qualification of the majority of teachers was Bachelor and above.

Per student classroom space was in par with the government norms in the beginning years of the study; however, decreasing trend of student enrolments has increased per student classroom space in the sample schools.

Acknowledgements

Longitudinal Study on System Indicators is the continuation of the studies that has been conducted for Ministry of Education/Department of Education since the year 2002 under Formative Research Project for School Sector Reform Program. The study has so far conducted analysis on various indicators defined in close collaboration with the MoE/DoE and the study team, since the commencement of the study in 2002. The information provided by the study to MoE/DoE has been found to be very relevant in order to facilitate its process of planning, implementing, monitoring and managing SSRP programs.

I would like to take the privilege to thank and acknowledge on behalf of the study team of CERID for the continuous collaboration and valuable support of all the head teachers and teachers of the sample schools for the role they have played in collecting and ensuring the quality of data.

My sincere thanks are due to Dr. Dilli Ram Rimal, Director General, Ms. Dev Kumari Guragain, Director, Planning Division and Mr. Kewali Ram Adhikari, Deputy Director of DoE for their support in successfully completing this study.

Last but not the least, I would like to appreciate and thank entire research team and administrative staff of CERID for their unceasing support and commitments towards the study.

Prof. Dr. Krishna Chandra Sharma

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Chapter I: Introduction

Background

School Sector Reform Plan (SSRP) 2009-2015 document of the Ministry of Education, Government of Nepal have stated that “The experiences gained from the Formative Research conducted by CERID and other research institutions during EFA implementation have provided a basis for the continuation and expansion of these types of activities in the SSR program. Formative Research will be continued and used to support the GoN/MoE in making informed policy decisions.” (p.51). The successful implementation of Formative Research Project (FRP) and the support it has provided in the successful implementation of EFA has further prompted the Government of Nepal to continue FRP in the implementation of SSRP.

Longitudinal Study on System Indicators (LongSIS) is one of the major components of FRP. The study started in the year 2002 with sixty two sample schools from sixteen districts as sixteen stratum of Nepal representing three geographical and five development regions. CERID has been conducting this study continuously since the year 2002. LongSIS as the only research component of FRP for SSRP that has been continued by CERID jointly with DoE since 2011. In the year 2011-12, the study has been limited to only three districts representing three geographical regions. However, in the year 2012-13 DoE increased the number of sample districts to five, representing five development regions as well as three geographical regions of Nepal as suggested by CERID and recognized the importance of the study findings. The number of sample districts has remained the same till date.

The study although is limited to five districts it has revealed interesting and useful data and information on various aspects and indicators of the SSRP as being implemented in the country. It provided statistical data and a basis for trend analysis. The indicators included are: brief student profile, listing name, sex, age, social group, enrolment, promotion, and dropout. FRP has been conducting cohort analysis of students enrolled at grade one in the year 2002 and the subsequent years using this data. LongSIS has also been providing cross variable analyses relating to different indicators. The study has provided quantitative database information to facilitate the smooth implementation of SSRP by generating research based information for progress monitoring and critical understanding of the issues for strategic policy revisions.

This study features software for keeping the record of information of students' enrolment, retention, promotion, attendance and achievement, information on teachers' qualification, training and experiences, and background of the parents since 2002. The collected data are computerized and organised in MS Access program. The study has utilized these data and information for trend and cohort analysis. The students are followed up by using student tracking system and providing Student ID for each student in the sample schools. The unique student ID will be generated by the software as the new student is entered in the system to avoid the duplication of the students. The software can also incorporate the photograph of each student and teacher in the database.

Objectives

The main objective of the LongSIS under FRP for SSRP is to generate research based strategic information on selected SSRP indicators for the MoE/DoE to monitor the progress.

The specific objectives are:

- To collect information on basic indicators of SSRP from sample schools included in 2014
- To find out internal efficiency of school system by using Cohort Analysis of 2014.
- To provide research-based updated information on basic indicators to MoE/DoE for monitoring of the attainment regarding the set targets of SSRP.
- To establish a model computerized database system for student tracking.

Chapter II: Methodology

Individual student tracking study is the first of its kind in Nepal. The study attempted to do the cohort analysis by giving eleven digit unique students ID to each individual student of sample schools. The data have been collected from 15 schools of the five districts.

Sample

The sample districts and schools included in the previous years will continue to be the sources of the LongSIS data for this year as they constitute important grids that strategically cover the geographical diversities in the country. The list of sample districts and number of schools by development and geographical regions is given below.

Table 1: Number of Sample Schools by District and Stratum

SN	District	Development Region	Geographical Region	Number of sample schools
1	Dhankuta	Eastern	Hill	2
2	Rasuwa	Central	Mountain	3
3	Syangja	Western	Hill	4
4	Banke	Mid-Western	Tarai	3
5	Dadeldhura	Far-Western	Hill	3
Total				15

Tools

The laptop computers were used in order to gather the information directly from the schools. The information was directly computerized in the software installed in laptops of the field researchers.

The information was collected in these four categories:

1. **School Information Form:** This form captures the general information of the sample school. The location, address, type of school, number of students in all grades, classroom size, etc. are included in this form.
2. **Student Information Form:** The student information form includes the basic information of the students, their caste/ethnicity, information about their parents, monthly attendance, final achievement scores obtained and the status in the final school examination.
3. **Teacher Information Form:** This form contains basic information of the teacher of the sample school. The information on the work experience, level, training, attendance, etc. of the teachers was collected in this form.

- School Finance and other Information Form:** The information on library, income and expenditure, SIP, PTA, VEC, and school visits by different personnel was collected in this form.

Photographs of Students

The photographs of individual student enrolled in Grade I in the year 2015 and present on the day of school visit in all fifteen sample schools of five sample districts was taken and entered into student's database. This new initiative is taken to make it easy to track the children by their photographs and to keep a track of the visible changes in children's outlook. However, due to closure of the schools for summer holidays this was done only in one out of four schools of Syangja district.

Picture 1: Snapshot of the database with individual student information with picture

Student Information Entry

User Id: Admin
Date: 2072/03/29

Select District: Dadeldhura
Select School: Ghatal Secondary School
Enter Class: 01
Enter Year: 2071 OK

Student Code	Student Name	Sex	Caste	Date of Birth	District	VDC/Muni	Ward Tole	Permanent Address
71735601001	Sunita Kumari Sarki	F	SARKI	2065/12/22	Dadeldhura	Amargadhi Mi	3	Kate

Temporary Address	Family Pre-Rank	Disable	Mother's Name	Qualification	Occupation	Living Together?
	2		Tara Devi Sarki	Illiterate	Traditional Agric	Yes

Father's Name	Qualification	Occu_Type_Name	Living Together?	Guardian's Name	Qualification	Occupation	Living Together?
Datt Bahadur Sarki	Illiterate	Traditional Agric	Yes				

Student Class Information:

Year	Class	Roll	Section	Books Received	Attendance											
					Bal	Jes	Asa	Sra	Bha	Asw	Kar	Mar	Pou	Mag	Fal	Cha
2071	1	4	Within One	12	18	24	19	22	7	9	22	12	7	12	15	

Search by Name: Retrieve Undo Add New

The head teachers/data managers of the sample schools of Rasuwa district were invited at CERID with necessary data due to the time constraint. Hence, the photographs of the students have not been included this year from the schools of Rasuwa district.

The existing computer software developed for the data entry and analysis was updated. The data entry software is in Microsoft Access and it was modified and the necessary initiatives are being taken for this purpose.

Orientation

One day orientation program was conducted for the field researchers in order to bring the consistency on the data collection from the sample schools. Also, as a new section to

include the photographs of the students of Grade I in the database, the technique of taking photographs was also oriented to the field researchers.

Process of data collection

In order to assure that the schools take the ownership of and control over the process and the product of collecting and analyzing the data of individual students, the school authorities were involved during data collection and data management activities at school level.

The data was collected from the schools for the academic session of the year 2014, which includes school information, student information, teacher information and financial as well as other necessary information.

The head teachers/data managers from three sample schools of Rasuwa districts were invited at CERID for the data collection. The field visit to this district was not possible due to the time constraint, however, inviting the head teachers/data managers from the sample schools of Rasuwa reminded the cluster level data collection workshops that were used to be conducted in previous years.

The collected data was entered in the data entry software by the field researcher in the field itself using their laptops in order to ensure the quality of the data.

Table 2: Data Collected till 2014

BS	AD	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
2059	2002	1												
2060	2003	2	1											
2061	2004	3	2	1										
2062	2005	4	3	2	1									
2063	2006	5	4	3	2	1								
2064	2007	6	5	4	3	2	1							
2065	2008	7	6	5	4	3	2	1						
2066	2009	8	7	6	5	4	3	2	1					
2067	2010	9	8	7	6	5	4	3	2	1				
2068	2011	10	9	8	7	6	5	4	3	2	1			
2069	2012		10	9	8	7	6	5	4	3	2	1		
2070	2013			10	9	8	7	6	5	4	3	2	1	
2071	2014				10	9	8	7	6	5	4	3	2	1

Table 2 shows the data collection matrix till the year 2014 by the number of cohorts by grades and years.

There are nine cohorts who have reached to Grade 5 and above, six cohorts reaching Grade 8 and above and four cohorts reaching Grade 10 and above. The analysis of these three categories of the cohorts is presented in this report.

Limitations

There are tremendous possibilities for looking into various characteristics of education of Nepal by using huge amount of information gathered since the year 2002 till date in the course of this study using other statistical analysis; however, this has not been explored in this report. As the limitation of time and resources available for the study, comparison has been made only using a few of the indicators.

Chapter III: Students Flow from 2002 to 2014

In the following section, the analysis of nine cohorts of students from 2002 to 2010 who were enrolled in Grade I and reached Grade V without repeating any grades in five consecutive years is presented.

Similarly, the analysis of six cohorts of students from the year 2002 to 2007 who were enrolled in Grade I and reached Grade VIII without repeating any grades in eight consecutive years is also presented.

And, four cohorts of students enrolled in Grade I in the year 2002 to 2005 and reached Grade X in ten consecutive years without repeating any grades is presented in this section.

Only the students who were enrolled in Grade I as fresh new entrants were included and analysed in this student cohort flow.

The repeater students who were already in Grade I have been excluded from overall student flow. The school leaving students are not included in the analysis.

New Entrant Student Enrolment Trend in Grade I

The only new students enrolled in Grade I in the year 2002 are taken as the base year and the enrolment of percentage of students in Grade I in the consecutive years is presented in Figure 1.

Figure 1: Trend of New Entrants in Grade I

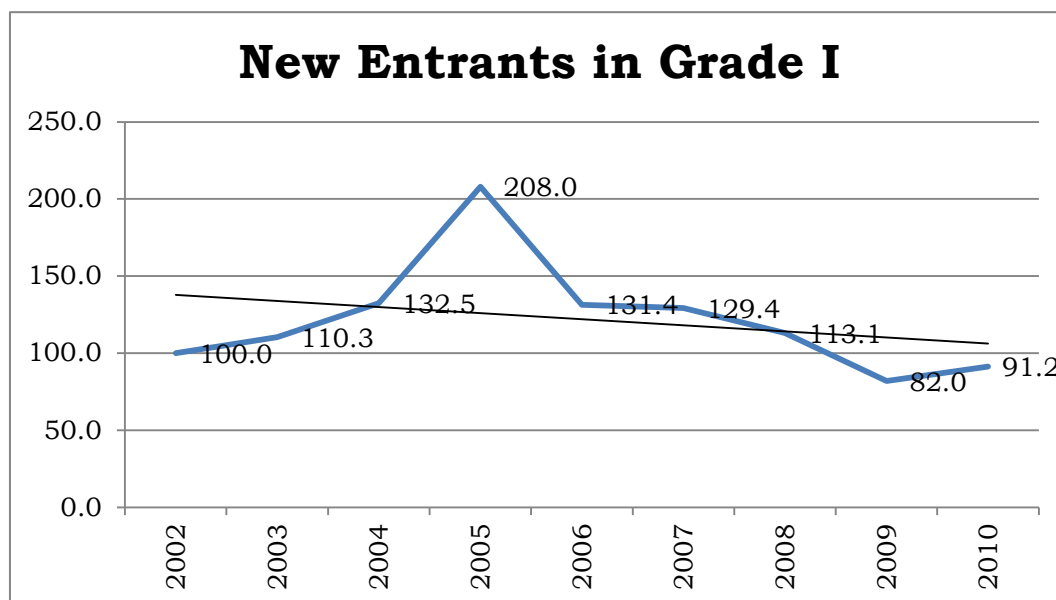


Figure 1 shows that the enrolment of students started increasing up to the year 2005. In this year the student enrolment was more than double of the base year; however the student enrolment started decreasing since the year 2006.

The trend of new entrants in Grade I started decreasing and it dropped up to 82 percent compared to base year in the year 2009. The student enrolment was found to be higher in all the years compared to base year except in the year 2009 and 2010.

Student Cohort Flow up to Grade V

The overall flow of the nine student cohorts, enrolled in Grade I from the year 2002 to 2010 is presented here. All the fifteen school have been included for analysis, since all the sample schools do have students up to Grade V.

The number of students enrolled in Grade I in the year 2002 is taken as the base year as 100 percent. The number and percentage of students who were upgraded in the subsequent years are presented in Table 3.

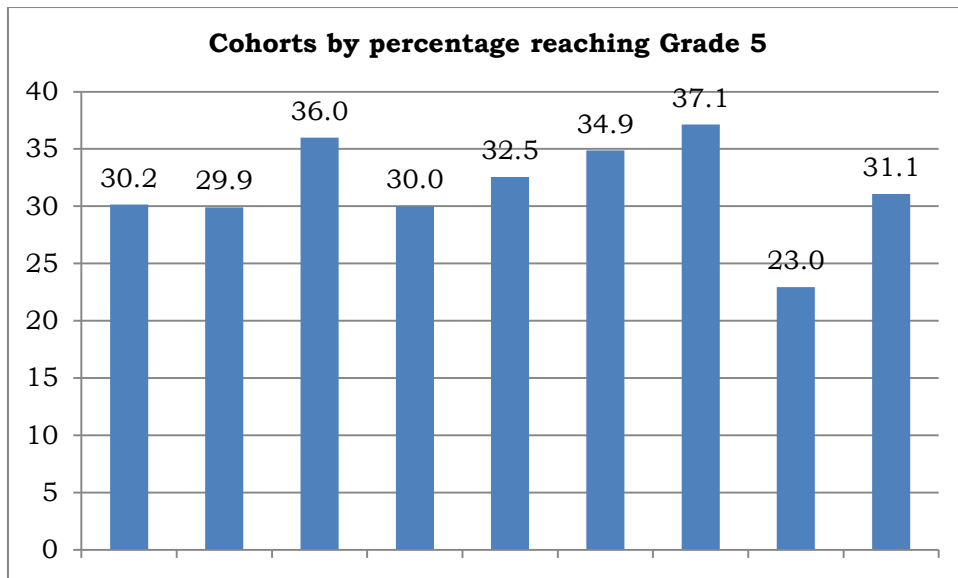
Table 3: Student Cohort Flow up to Grade V

	Grade I	Grade II	Grade III	Grade IV	Grade V
2002	100 (388)				
2003	100 (428)	50.8			
2004	100 (514)	43.0	30.2		
2005	100 (807)	50.4	29.9	25.0	
2006	100 (510)	57.2	36.0	22.2	21.1
2007	100 (502)	45.3	30.0	28.2	17.5
2008	100 (439)	45.2	32.5	21.8	23.5
2009	100 (318)	54.2	34.9	23.7	18.0
2010	100 (354)	55.7	37.1	24.3	19.0
2011		57.3	23.0	29.2	14.7
2012			31.1	29.6	22.3
2013				22.6	23.6
2014					18.1

The student cohort flow shows that more than fifty percent of the students enrolled in Grade I as new entrants are promoted to Grade II in the next year. Around thirty two percent students reach Grade III in the third year and around twenty five percent students reach Grade IV in the fourth consecutive year without repeating any grades.

It shows that nearly twenty percent of the students enrolled in Grade I as new entrants in the year reach to Grade V in five consecutive years without repeating any grades.

Figure 2: Percentage of students reaching Grade V by Cohort year



The figure shows that out of total students enrolled in Grade I in 2002, only 21.1 percent students reached Grade V in five consecutive years.

Among the nine cohorts from 2002 to 2010, the highest percentage of the students reaching Grade V in five consecutive years without repeating any grades was about 24 percent of the 2004 and 2009 cohorts.

The lowest percentage was about 15 percent of the 2007 cohort, students reaching in Grade V in five consecutive years.

Student Cohorts flow up to Grade V by Sex

The sex of the students and the differences in the pattern of reaching in Grade V in five successive years are presented in this section.

The percentage of girl and boy students enrolled in Grade I as new entrants in the year 2002 to 2010 and who reached Grade V in the year 2005 to 2014 are respectively analysed in the following figure.

Figure 3: Percentage of students reaching Grade V by cohort and sex

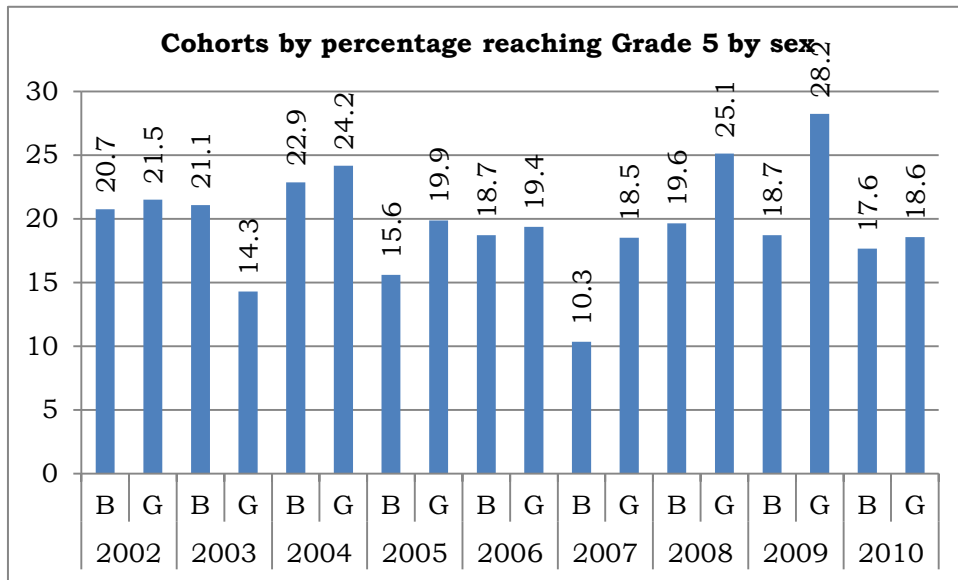


Figure 3 shows that the percentage of girls reaching Grade V in five successive years without repeating any grades is higher than the percentage of boys in most of the cohorts. The highest of girls was found in the year 2009 and the lowest of boys was found in the year 2007.

Student Cohort Flow up to Grade VIII

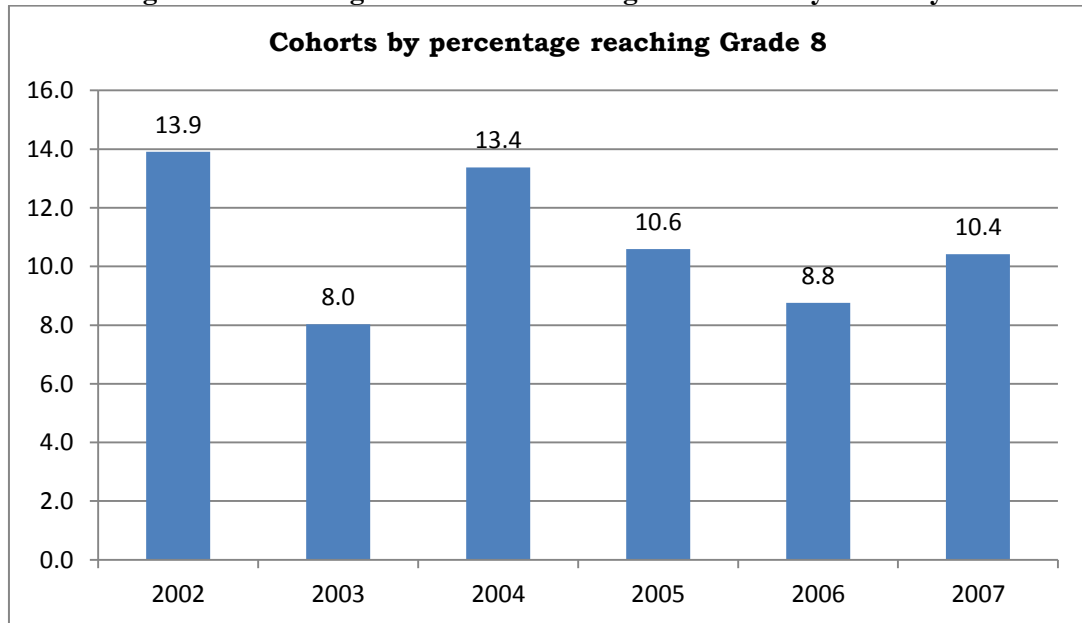
The student flow of six cohorts from the year 2002 to 2007 have been analysed here. Out of 15 sample schools only nine schools having upper-primary grades were included for the analysis.

Table 4: Student Cohort Flow up to Grade VIII

	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
2002	100 (266)							
2003	100 (299)	60.9						
2004	100 (344)	41.1	35.7					
2005	100 (595)	51.5	29.1	28.9				
2006	100 (388)	57.3	39.0	22.7	25.6			
2007	100 (403)	42.5	30.1	30.2	18.1	19.2		
2008		46.7	32.0	23.4	25.0	13.0	16.2	
2009			35.7	22.4	18.7	23.0	10.7	13.9
2010				23.6	17.8	15.0	17.2	8.0
2011					20.8	14.9	8.9	13.4
2012						16.9	10.8	10.6
2013							12.9	8.8
2014								10.4

It shows that, in an average half of the students enrolled in Grade I as new entrants in all the cohorts reached Grade II in the following year. Around 34 percent reached Grade III, 25 percent reached Grade IV, 21 percent reached Grade V, 17 percent reached Grade VI, 13 percent reached Grade VII and 11 percent reached Grade VIII in the successive years.

Figure 4: Percentage of students reaching Grade VIII by Cohort year



The cohort of student reaching Grade VIII in eight consecutive years was the highest of the year 2002 and the lowest of the year 2003. There are variations in the percentages of students reaching Grade VIII without repeating any grades in the cohorts. The reasons affecting this variation in the percentage in six cohorts is beyond the scope of this study.

Student Cohorts flow up to Grade VIII by Sex

The analysis of student cohort flow reaching Grade VIII by Sex is presented in this section.

Figure 5: Percentage of students reaching Grade VIII by cohort and sex

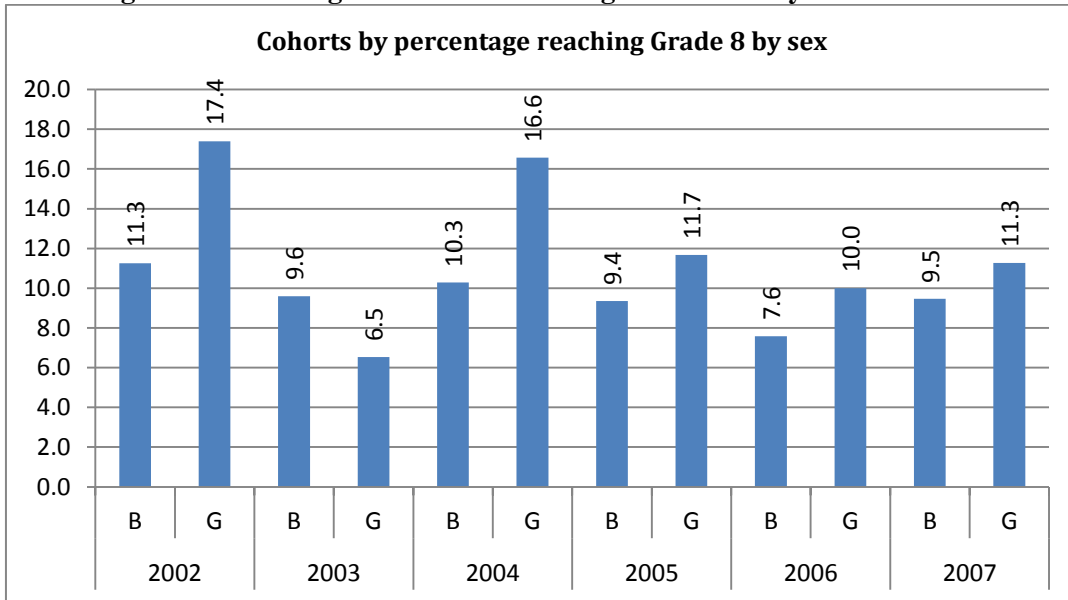


Figure 5 shows that the percentage of girls reaching Grade VIII without repeating any grades in eight successive years was found higher compared to boys in all the cohorts except 2003 cohort.

Student Cohort Flow up to Grade X

There were seven schools out of fifteen sample schools with up to Grade X and above, which is included in this part of analysis.

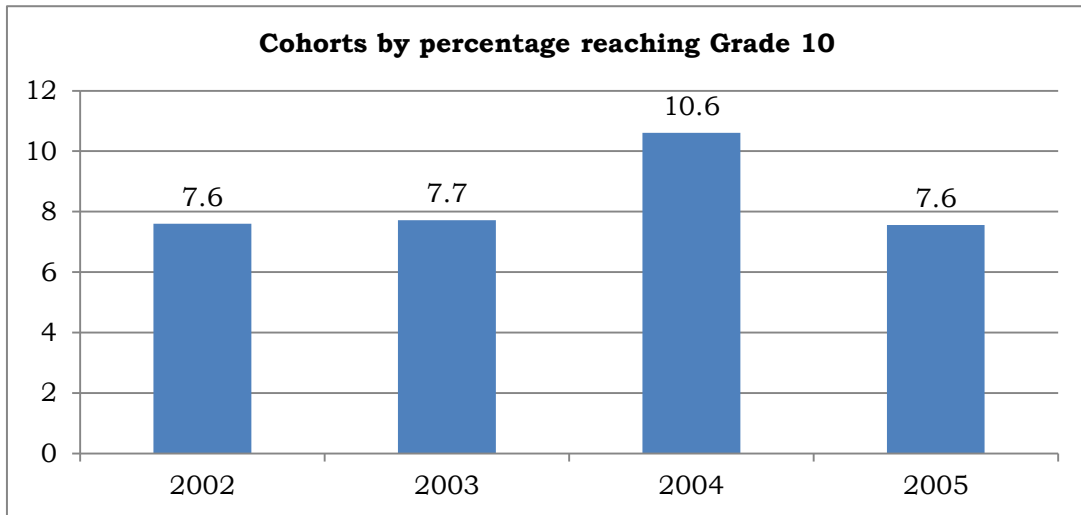
Figure 6: Student Cohort Flow up to Grade X

	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10
2002	100 (250)									
2003	100 (285)	64.0								
2004	100 (330)	42.8	37.6							
2005	100 (569)	53.3	30.5	30.4						
2006		58.7	40.3	23.9	26.8					
2007			30.8	31.2	18.9	20.4				
2008				24.3	25.8	13.7	17.2			
2009					19.3	23.6	11.2	14.8		
2010						15.5	17.6	8.8	12.0	
2011							9.1	13.6	8.1	7.6
2012								10.9	11.2	7.7
2013									9.7	10.6
2014										7.6

About 55 percent of students enrolled in Grade I as new entrants in all the four cohorts reached Grade II in the next year. Similarly, about 35 percent in Grade III, 28 percent in

Grade IV, 23 percent in Grade V, 18 percent in grade VI, 14 percent in Grade VII, 12 percent in Grade VIII, 10 percent in Grade IX and 8 percent in Grade X.

Figure 7: Percentage of students reaching Grade X by Cohort year

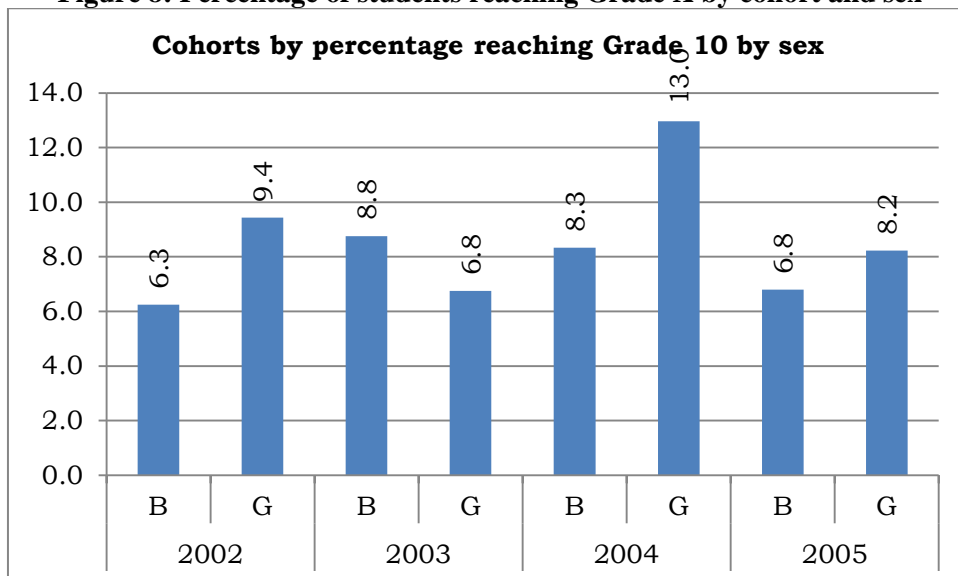


Specifically, the percentage of students reaching Grade X without repeating any grades in ten consecutive years was around eight percent in all the cohorts except in the year 2004 cohort.

Student Cohorts flow up to Grade X by Sex

The percentage of student cohort reaching Grade X by sex is presented in Figure 8.

Figure 8: Percentage of students reaching Grade X by cohort and sex



It shows that, the percentage of girls reaching Grade X is higher compared to boys in all the cohorts, except in the year 2003 cohort.

Chapter IV: Trend Analysis of some of the Indicators of SSRP

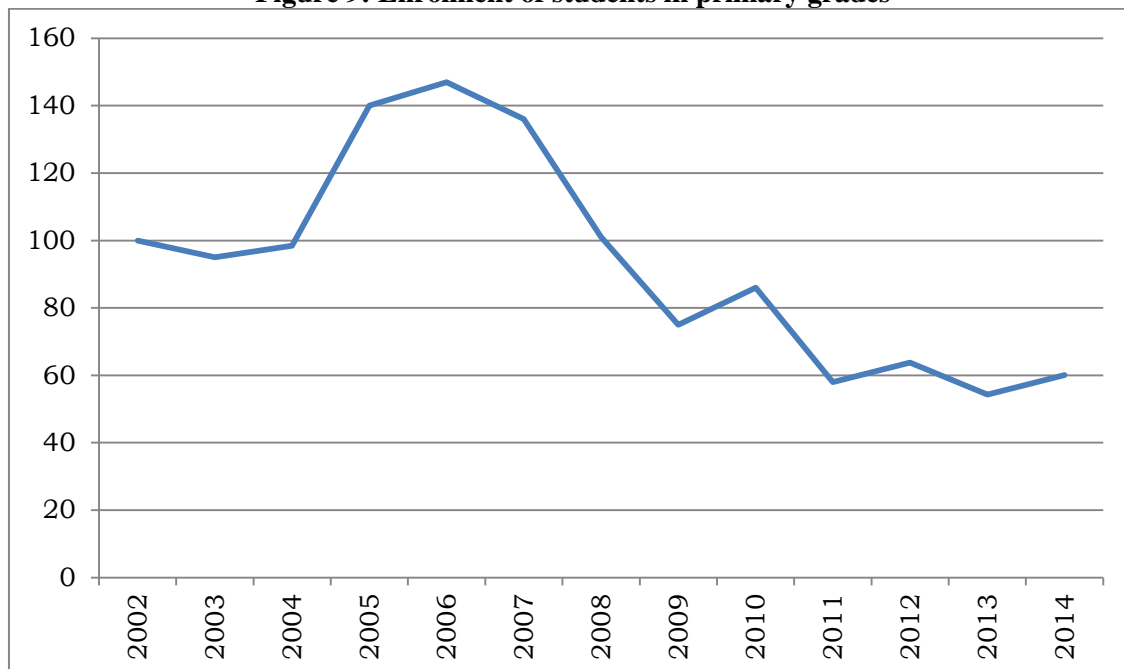
The Trend Analysis of some of the indicators of SSRP is presented in this chapter. The study was initiated in the year 2002. In the given report the trend of the indicators is presented from the year 2002 to 2014.

Trend of Student Enrolment from 2002 to 2014

The year 2002 is the base year for the trend analysis. It has been started by taking 100 percent in the base year and different percentages of other years are calculated accordingly. In this section the trend analysis of some pertinent indicators has been done over a period of time from 2002 to 2014.

The student enrolment trend in Grade I in the sample schools is presented in the given chart.

Figure 9: Enrolment of students in primary grades

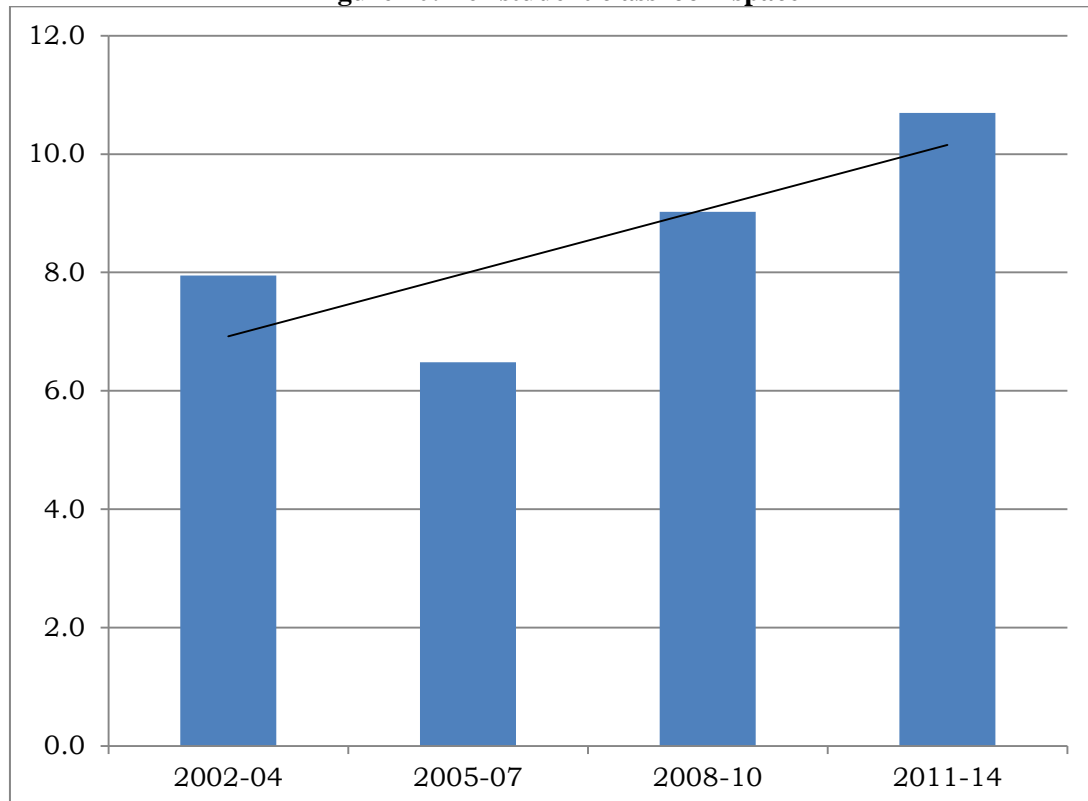


The student enrolment trend in Grade I shows that there was a noticeable peak up from the year 2004 to 2005. There is great increase in the percentage of student enrolment in Grade I in the year 2006 in the sample schools. The trend shows a decline in student enrolment in Grade I since the year 2007; however in 2010 it increased and started falling again in the subsequent years.

Changes in per Student Classroom Space in sample schools

The Education Regulation has set 0.75 sq. meters i.e., 8.1 sq. ft. per student classroom space for Basic Level. The available space for the students in the sample schools during the study period is presented in this section.

Figure 10: Per student classroom space

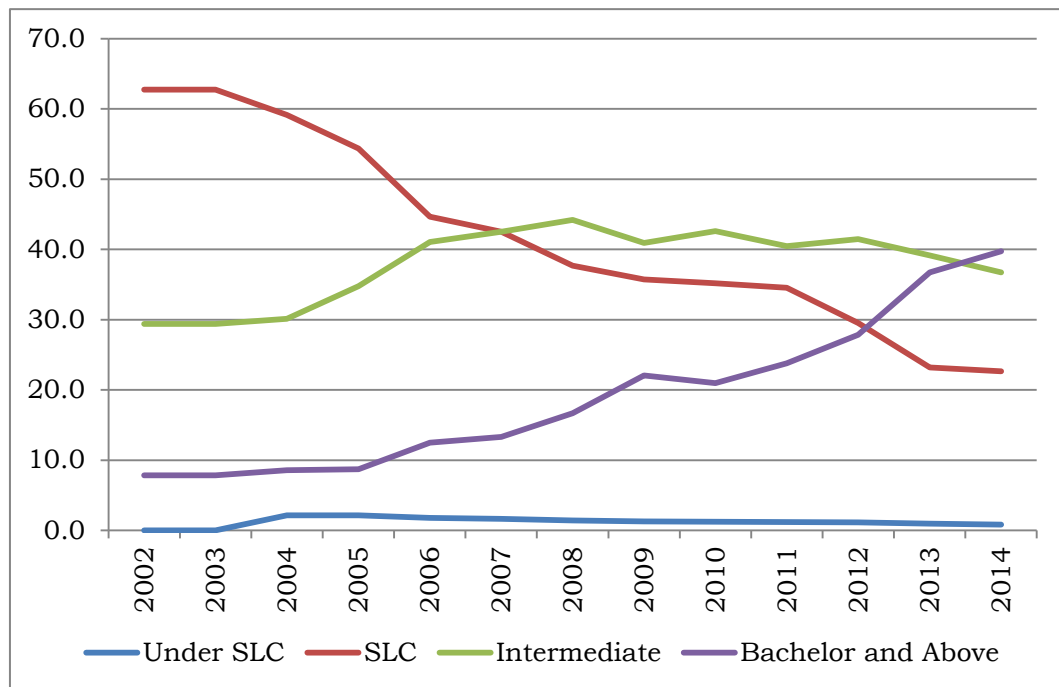


The measurement of per student classroom space was in par with the government norms in the beginning years of the study. Then the sudden increase in the student enrolment in the years 2005 to 2007 has decreased the per student classroom space. Again, the decrease in the student enrolment since 2008 has increased per student classroom space in the sample schools.

Changes found on the status of teacher's qualification

The distribution of teachers by their educational qualification in the sample schools is analysed in this section.

Figure 11: Teacher's Qualification



The majority of teachers in the base year 2002 were with the qualification of SLC, which gradually started decreasing in the subsequent years. The percentage of teachers with the qualification of Intermediate level has started increasing gradually from 2002 in the subsequent years and started to down fall from the year 2008. This is because of the percentage of teachers with Bachelor and Masters Level of educational qualification started increasing.

There are still some teachers with educational qualification under SLC, however, the percentage is in declining trend.

Chapter V: Findings and Recommendations

The conclusions based on the findings and recommendations of the study are presented in this section. The overall recommendations based on the major findings from both cohort and trend analysis is presented.

Findings

The student enrolment as new entrants in Grade I is in decreasing trend in comparison to the previous years.

The flow of the students shows that Grade I to Grade II appears to be the most difficult hurdle for all the cohorts, with the lowest flow.

The percentage of students reaching Grade V without repeating any grades in five subsequent years was found around twenty percent irrespective of the school leaver students.

Generally, the percentage of girl students reaching Grade V in five subsequent years was higher than boys.

Among the students enrolled as new entrants, around eleven percent reached Grade VIII in eight subsequent years and this percentage is higher of girls compared to boys.

It was found that around eight percent of students enrolled in Grade I as new entrants reached Grade X in ten successive years without repeating any grades. The school leaver students, who might have enrolled in other schools, were excluded in this analysis. The percentage of girl student is higher compared to boy students.

The intake of students in Grade I shows a decreasing trend.

The academic qualification of the teachers was found more towards the Bachelor and above.

Per student classroom space was in par with the government norms in the beginning years of the study; however decreasing trend of student enrolments has increased per student classroom space in the sample schools.

Recommendations

The stakeholders should take ownership of the data generated in the schools and use it for planning. The school level data keeping and the data analysis need to be consistent in all

the schools. The school level data keeping system needs to be strengthened at the school level for analysis, reporting and their use.

The characteristics of the schools and students such as physical facilities, qualification/training of teachers, sex, attendance, achievement scores, student family background, etc. need to be statistically analyzed in order to enhance the internal efficiency of schools education. This will provide research based information to the policy makers.

Further Issues

The study design was initiated in the 2002 and still the study is following the same methodology, however the context has change in the present time. The indicators were revised during the initial phase of EFA, therefore the 43 indicators needs to be reviewed and revised.

The data has been collected from 13 cohorts by 2014 and each year data is collected for a new cohort. Hence, there should be a clear vision on the limitation of the number of cohorts.

Similarly, the students of the initial four cohorts have completed Grade X and data has been collected. There are sample schools where the students of these cohorts are doing their higher studies in higher secondary level; also some cohorts have passed out the school level and perusing their higher studies in colleges. The cohort study demands the tracer studies of those students; therefore there should be clarity on the limitation on the study design.

As a part of this study, a set co computer, printer and UPS were provided to 62 sample schools of 16 sample districts on Nepal in 2010 in order to make the schools capable in record keeping system and use of data for the school itself. Therefore, there should be a follow-up mechanism and further trainings.

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Annex

Sample School

Dhankuta

Margeshwori Primary School, Charagaun, Dhankuta - 4

Gokundeshwor Higher Secondary School, Siran Bazar, Dhankuta – 7

Rasuwa

Bhimali Primary School, Bhimali, Dhunche – 4

Rasuwa Higher Secondary School, Dhuche - 8

Saraswati Lower Secondary School, Thade, Dhunche - 2

Syangja

Bhumre Higher Secondary School, Bhumre, Bidhyalaxmi – 1

Saraswati Secondary School, Gairhikhet, Syangja – 4

Durga Devi Primary School, Devasthan, Putali Bazar – 2

Amilithum Primary School, Waling – 3

Banke

Nepal Rastriya Secondary School, Manakamanapur, Bageshwori – 5

Saraswati Primary School, Bankegaun, Nepalgunj – 12

Secondary School, Lagdhawa, Karkando, Nepalgunj – 6

Dadeldhura

Ghatal Higher Secondary School, Nuwakot, Amargadhi – 3

Mastabaijyanath Lower Secondary School, Dhoda, Dandaban, Nawadurga – 4

Janajyoti Primary School, Adityapur, Amargadhi - 2