**SABOOJ SATHI ONLINE**

**(www.wbsaboojsathi.gov.in)**

1. ***Project overview***

Government of West Bengal announced the flagship scheme for providing bi-cycles to estimated 4.00 million students of Class IX to XII standard of 12,000 plus Government run and aided Schools in 2015-16. Hon’ble Chief Minister of West Bengal christened the scheme as ***“Sabooj Sathi”***

The scheme was conceived with the primary objective of enhancing access to educational services particularly, in rural Bengal. Other important objectives are:

* To increase retention in schools,
* To encourage students to take up higher studies,
* To inculcate sense of confidence among the girl students by promoting mobility,
* To promote environment-friendly and healthy means of transportation.

The objectives are aligned with four Sustainable Goals of agenda 2030. These are SDG3: Good Health & Well-being, SDG4: Quality Education, SDG5: Gender Equality and SDG13: Climate actions.

Implementation of the scheme had multi-dimensional challenges like bulk procurement, transportation of large consignments in tranches, management of huge supply chain and finally handing over a quality product to the target group students. Time bound implementation, minimizing operational expenses and maintaining transparency were key issues of concern.

Sabooj Sathi Online ([www.wbsaboojsathi.gov.in](http://www.wbsaboojsathi.gov.in)) is the e-Governance mechanism of the scheme which ensures end-to-end ICT enablement in management of entire processes like capturing of students’ record, finalization of bi-cycle requirements (delivery point wise), supply chain from factory to distribution point, updating distribution records online and proactive disclosure in public domain.

Hon’ble Chief Minister flagged off bi-cycle distribution on 29th September 2015. Since then, around 6.5 million students already received bi-cycles and another 0.5 million students are being covered.

1. ***Target Group***

“Sabooj Sathi” scheme was initially targeted to cover student population of 4.00 million of class IX to XII in 12,000 Government run and Govt. aided Schools and Madrashas located at rural and urban areas across entire geographical spread of the State except Darjeeling Hill and Kolkata. During 2015-16 to 2017-18, around 6.50 million students were covered. State Government is continuing the scheme and another 0.5 million students are being covered.

1. ***Why Sabooj Sathi***

Sarva Siksha Aviyan (SSA) ensured universal coverage under primary education by establishing easy access to schools. While Primary schools are available almost in every village or within comfortable walking distance, high schools are far from the habitations, particularly in rural areas. Average distance to be covered to attend high school is 3 to 5 kms and even beyond that in some occasions. Varying road conditions, particularly in rain season, in the rural areas, accessibility becomes more difficult. Students from economically backward families and socially disadvantageous sections, especially the girls were found dropping out from schools at the threshold of high school education due to this critical factor. There might be several other social causes, but accessibility was found to be the most important issue to be addressed to achieve the goal of universal coverage under high school education.

An experiment in miniscule was conducted in 23 LWE (Left Wing Extremist) Blocks of the State where dropout rates were found to be fairly high. A scheme for providing bi-cycle to the girl students of socially disadvantageous sections was launched which continued for two years before “Sabooj Sathi” was announced. The experiment yielded positive results in terms of enrollment and retention in high schools. The State Government, after observing the encouraging result, triggered the unprecedented scheme titled “Sabooj Sathi” which targeted to cover 4.0 million students of class IX to XII in the Govt. schools and Madrashas of the State. The policy of universal coverage is based on the principles of equity and creating equal opportunities for all, irrespective of class, caste, creed, religion and socio - economic status.

1. ***Implementation Model***
   1. **Problems identified**

The magnitude and the scale of this bi-cycle distribution programme were unprecedented in the country. Stiff timeline mandated by the State Government and ensuring efficiency, efficacy and transparency at all stages of delivery of this public utility service made the endeavor more challenging. There was no falling back as this kind of replicable model was totally non-existent in the country. Major challenges identified were:

* + 1. **Procurement:** Basic challenge was to procure 4.00 million bi-cycles of suitable category having appropriate BIS specifications. Category of bi-cycles was to be chosen keeping in mind variable road conditions in rural areas, availability of maintenance facility, cost and durability. Maintaining transparency in procurement process is mandatory. Situation also demanded time bound procurement of bi-cycles.
    2. **Database of eligible students:** After exploring potential resources, it was found that convenient and ready-to-use database of students was not available. Hence, creation of primary data and its validation were major challenges.
    3. **Management of supply chain:** Bi-cycle industry is predominantly based at Ludhiana. Carrying fitted bi-cycles from distant places is not cost effective for bulk supply. Here, usual practice is to carry components and assembling those at destination points. One truck usually carries components of 550 bi-cycles which makes the transportation more cost effective. Outreaching remotest parts of the State with physical barriers like jungle, rivers etc. posed huge logistic challenge. Mechanism needed to be in place for seamless delivery in tranches from factory to destination point. A monitoring platform for the manufacturers to regulate supply to the destination points, as per exact requirement, was an imperative. Micro-level monitoring of shipment, deficiencies, and diversion of consignment had to be addressed through his platform.
    4. **Planning for assembling and distribution:** Final destination points are 12,000 schools across the length and breadth of the State where bicycles would be distributed. Transportation of components to each of these schools as per exact requirement and assembling at the designated spots was not feasible on most of the occasions. Hence, identification of suitable covered spaces convenient for storing large consignments, assembling of bi-cycles and safekeeping of fitted bi-cycles were imperative. Further challenge was to transport fitted bi-cycles to the final destination points (12,000 schools) in the most convenient and cost-effective manner.
    5. **Reducing Programme Management Cost:** Such operations usually require huge administrative cost in management of various processes at different levels apart from cost of procurement. Challenge was to complete distribution in the most cost-effective manner.
    6. **Manpower planning:** Deployment of manpower, defining roles and responsibilities, sensitization of stakeholders were key issues for successful implementation of the scheme.
    7. **Transparency & social audit:** Keeping up with the mandate of the State Government for transparency at every stage of implementation was necessary.
  1. **Strategy/ Methodology adopted**

Implementation of this scheme demanded participation of officials and functionaries from various Government Departments. Synergy was established through sensitization, capacity building, defining roles and responsibilities and clear communication. To minimize operational cost, only existing Government infrastructure and Human resources were utilized. Dedicated administrative framework was designed, processes standardized and e-Governance mechanism was developed.

* *Backward Classes Welfare Department was designated as Nodal Department & WB SC ST Development & Finance Corporation as the Implementing Agency.*
* *State Government Constituted a Steering Committee headed by Principal Secretary to oversee the operations.*
* *State Project Management Unit was set up.*
* *Category and specifications of bi-cycles (34) as per Bureau of Indian Standard (BIS) in consultation with “R & D Centre for testing of bi-cycles”, a joint initiative of Govt. of Punjab and UNDP. Distinct colour code for the bi-cycles, affixing Taggant label with code for District, year of manufacture was prescribed for security and tracking purposes.*
* *Procurement was made through e-Tender, guidelines of CVC were followed, and two bid systems, a) Technical b) Financial of evaluation was adopted.*
* *Tender process was kept transparent through proactive disclosure of every step in the public domain.*
* *Existing pool of Government officials at Block, Municipality and District level were aligned. Teachers, Inspector of Schools were sensitized. BDOs and SDOs identified 2,500 large Government infrastructures for taking delivery and assembling. Schools were tagged with these points for sending fitted bi-cycles conveniently. Work was carried out through an SOP communicated via e-mail and Video Conferencing (VC).*
* *e-Governance has been considered as the most vital component in the project planning. ‘Agile Development’ methodology followed for faster development of ICT based solution. The grassroots level managers interacted through ICT based support system (Voice, Email and Video Conferencing).* 
  1. **Communication and dissemination**

Administrative framework for implementation and clear communication to implementers at different levels are key parameters for quick and successful implementation of the scheme. It was planned to utilize services of existing pool of Government Officials and Staffs of various Departments at different levels. No operation was outsourced or paid for. Though large no. of such human resources was deployed they provided service from their own workplace which was already equipped with sufficient ICT based resources. Communication from respective Departmental heads ensured synergy among District & Sub-District level officials. After initial sensitization, State Project Management Unit harnessed all the implementing bodies through ICT based communication network. Video Conference through NIC facility with the Districts ensured quick communication. SOP based communication through Sabooj Sathi on-line defined roles and responsibilities with specific timeline. User manuals available through the portal ensured flawless operation by implementers at decentralized level. Help desk provided dedicated support to all stakeholders.

1. ***Services provided***

Sabooj Sathi Online ([www.wbsaboojsathi.gov.in](http://www.wbsaboojsathi.gov.in)) is the e-Governance mechanism of the scheme which ensures end-to-end ICT solution in management of entire processes like capturing of students’ record, finalizing bi-cycle requirements, managing supply chain from factory to distribution point, updating distribution records online, monitoring at different levels, and proactive disclosure in public domain.

***e Services:***

1. Entry of students’ particulars online by the schools - 12,000 schools participated and entered particulars of 4.00 million students from class IX to XII, both boys and girls (12,000 logins).
2. Validation, online – One thousand (1,000) Inspectors, mapped with the schools validated 4 million records (1,000 logins).
3. Generation of Distribution record online: Schools (12,000) generated partially filled in distribution records in a specific format with QR code.
4. Mapping of schools with delivery points: 333 Blocks, 127 Municipalities mapped 12,000 schools with 2,500 plus delivery points thus finalizing point wise requirement of Boys & Girls bi-cycles – Data made available to the suppliers through their log-in.
5. Consignment tracking: 7,500 Trucks dispatched by the Suppliers, their particulars recoded at the time of dispatch by the suppliers and tracked by Block, Municipality, Districts.
6. Uploading distribution details: Schools (12,000) uploaded particulars of distribution to 4.00 million students through their log-in which were made available in the public domain for viewing.
7. MServices
8. Volume of Transactions

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| --- | --- | --- | --- | --- |
| **e-Service** | **Vol. of services year-wise (No’s)** | | | |
| **2015-16** | | **2016-17** | **2017-2018** |
| Entry of students’ record | | 25,34,000 | 14,60,000 | 19,84,000 |
| Validation of students’ record | | 25,34,000 | 14,60,000 | 19,84,000 |
| Generating pre-formatted, partially filled distribution record (Muster Roll) | | For all eligible students | For all eligible students | For all eligible students |
| Creating Delivery point – Tagging of Schools | | 2,500 | 2,500 | 2,500 |
| Consignment tracking | | 4,500 truck loads | 2,500 Truck loads | 3500 |
| Uploading distribution details | | 24,95,000 | 14,15,000 | 14,73,000 |
| MIS – For monitoring, public domain | | At various stages of implementation | At various stages of implementation | At various stages of implementation |
| Viewing Distribution details by citizen (Hit count in bn) | | 1.5 | 1.00 | 1.4 |

1. ***Process Flow:***



1. ***Technology Platform***

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| --- | --- |
| Type of services | G2C, G2B and G2G |
| URL | <https://www.wbsaboojsathi.gov.in> |
| Extent and nature of Aadhaar linkage / use | The Aadhaar no of beneficiaries are being captured. |
| Mobile Governance | Sabooj Sathi mobile app has also been developed for monitoring different processes of implementation. SMS services are also available. |
| Convergence with other Organisations | Sharing of information and synergy with School Education, Madrasah Education and General Administration at District & Sub-District level.  e-Governance Standards are used for seamless data interchange with other standard systems whenever necessary. |
| System Administration & Maintenance | Maintenance of SW/HW/NW, System Administration:  NIC, WB State Centre  Day-to-day Operations:  All Stakeholders perform their assigned tasks.  Entire operation has been carried out internally & without outsourcing.  The Dept does not require having any separate SLA for maintaining the system as the system development & maintenance are being taken care of NIC-WBSC directly. The relevant SLAs have been prepared & implemented by NIC as part of its data centre management policy. |
| Technology Platform | The software has been developed using Open Source technology.   * Application Server- PHP engine * Database Server- PostgreSQL 9.6 * Web Server- Apache 2.4.6 * Middleware- N/A * System Software-RHEL 7.2 |
| Cyber Security | The Application software has been security audited by STQC, MeitY, GoI.  The Application has been hosted in NIC’s Cloud environment. It is protected through standard security arrangements which are available in the Cloud Environment including Firewalls & Intrusion Detection System. |
| Compliance to eGovernance Standards | The Application has been designed using available e-Governance Standards. It uses the MDDS for Location, Person’s address etc. |
| Interoperability | The software has been developed using open source software following open standards. Various national Master directories have been used in the software. It is highly scalable & replicable model of e-governance. The software is having high degree of interoperability. |
| Hosting Platform | The software has been hosted in the National Cloud Environment. |
| Disaster Recovery and service continuity | DR facility is available. |

1. ***Resources used***

* **Physical Infrastructure:** Existing Government infrastructure were used. No additional cost incurred for hiring of physical infrastructure. More or less 2,500 large accommodations of different categories and 12,000 schools were used for implementation.
* **Human Resources:** Services of existing pool of Government officials at different levels were utilized. No additional staff were recruited or hired.

**State Project Management Unit (SPMU):** 3

**District level:** 20 Nodal officers @ 1 for each District

**Sub-Division level:** @ 1 for each of the 67 Sub-Divisions

**Block level:** 15,00 @ 4 for each of 341 Blocks

**School Teachers:** @1 for each of the 12,000 Schools

**School Inspectors:** 750

* **IT Infrastructure:** Existing IT infrastructure and resources were used. No cost incurred for additional hardware or software. The e-Governance mechanism was developed by Team of NIC, West Bengal unit using cloud based server environment. Open source platform was used for development. Communication was made through NIC network.

1. ***User convenience***

The service delivery channels are web portal, mobile app, mobile version as well as SMS. The services can be accessed by any computing device using any standard browser. Students can access the services from their Schools itself or from any other convenient place having internet connectivity using any computing device. They can even track the status of distribution using their login account. Similarly, the designated Govt Officials and the suppliers can track the status of consignment and requisition, respectively, through their respective login in the web portal & mobile app.

1. ***Innovation***
   1. **Innovative use of new & emerging Technology**

Using ICT solutions for addressing every requirement of such a scheme having large scale of operations at every stage is unprecedented in the Country. The application software serves as an innovative supply chain management tools for the Government. The ICT solution provides single platform for all stakeholders to work seamlessly as per their pre-assigned roles. The solution is also innovative as the software design ensures a re-engineered workflow accessible from any computing device and any standard browser as well as provides state of the art security in the cyber space.

* 1. **Innovative approach**

The Government’s decision to provide each of the high school students with a bicycle was a result of clear headed thinking on the issue of meeting the challenge of inaccessibility and why the Government went against the popular global current of selective (popularly called “targeted”) facilitation, and decided to make the programme universal, was related to two things: (a) the intrinsic priority of non-discrimination in education, and (b) experiences of public programme delivery, both at home and away. It has been seen that programmes for select, “needy”, group of population, have often met with limited success, if not failed entirely. The reason is simple: the implementation of schemes for selected population often lacks one of the essential requirements of proper delivery – social watch dogging. Since the selected population is often found to be short in information and voice, and implementers often take for granted, the delivery of such schemes tends to fall prey to mishandling. On the other hand, when universalized, the section that may not be that needy but is empowered with information, voice, and social connections, plays an inspectorial role in the implementation of the programme.

* 1. **Innovations in planning & implementation**
     1. **Project Planning:** The project has been conceptualized keeping in mind all real-life challenges for such a large-scale operation. Planning was the ‘key factor’ for successful implementation of the project. E Governance has been considered as the most vital component & central to the design of the project planning. Mapping of all the activities of the scheme. ‘Agile Development’ methodology followed for faster development of ICT based solution. There was no pilot run possible, so the operation support team & SPMU communicated with the grassroots level managers through ICT based support system (Voice, Email, VC). The stakeholders were given access to only one module at a time. This approach accelerated implementation process.
     2. **Inclusion:** The stakeholders were taken into confidence & empowered to take crucial decisions. It developed sense of ownership among them. The motivation level was also very high as their job content has been enriched with user-friendly ICT interventions.
     3. **Sustainability:** One key learning of the project is dependency on available resources. The entire ICT platform was managed through various teams of NIC, the e Governance major. The software development team, Cloud team, Operation Support team worked in tandem to provide seamless services. It has used the existing Cloud Platform in “Platform as a Service” mode. The eProcurement platform used for e Tendering. Mail & SMS Gateways of NIC were used to provide various eServices & m Services. The entire operation was carried out using existing Govt. resources in terms of manpower, machine and infrastructure. It is pertinent to mention that over all operational cost was even below 0.5% of the Project cost.
     4. **Social Audit:** It has been decided from the very beginning that transparency will be maintained in the design of the scheme. The scheme has been designed keeping in mind ‘Social Audit’ as a key & core component. Details of each beneficiary including the frame no of the bi-cycle have been kept in the Sabooj Sathi Portal for public viewing which is unprecedented for such a scheme.

1. ***Forward looking approach***

The database and application will facilitate the State Government to track transition status of each student from Class IX onwards. This is also expected to trigger major policy issues in education sector in the times to come. This application has further been extended to facilitate career options and opportunities as per the inclination and likings of the students through their respective logins.

1. ***Defined and Achieved outcomes***

The project is primarily targeted to increase enrollment and retention in high school by increasing access. During post implementation phase:

* An increase by 12.2% in class IX enrolment from 2015 to 2016 and a subsequent increase by 6.18% from 2016 to 2017 were witnessed,
* Girl examinees in Xth standard Board Exam is 9.18% more than the Boy examinees in the year 2016.

State Government engaged “Pratichi (India) Trust”, an organization founded by Nobel laureate Dr. Amartya Sen, for evaluation of the project. As per quick study conducted by them ***“Apart from its immediate goal of ensuring accessibility to high schools the programme has had a huge societal impact by enhancing the general mobility of the population and that of the girls in particular. The bicycles distributed among the students are not only used for schooling but also for several other Domestic and Social utilities. The bicycle, indeed, is breaking many boundaries”.***

Other measurable outcomes are:

* Efficient distribution of bi-cycles to 7.00 million students.
* Availability of distribution record in electronic format.
* Maintaining transparency, accuracy.
* Creation of replicable model for delivery of ‘in-kind’ benefits to citizen.
* Enhanced awareness and level of e-literacy supporting Digital India Campaign.
* Creating example of Good Governance.
* Synergy of different Departments.
* Reduction of project implementation cost

1. ***Sustainability***

Open Source technology and Open Standards have been used while developing the system which makes it sustainable. All national standards of eGovernance have been used in the system. The system can be accessed only by designated persons through a well-defined access control system. The network traffic is encrypted through SSL technology.

1. ***Adaptability***

In the E-governance mechanism all national master directories were used. The system was developed using open source technology. Cloud based server hosting environment ensures resources availability dynamically as per user requirement. The stakeholder’s logins were password protected and latest encryption algorithm (md5) has been used for password authentication with an additional security of “dynamic salt”. The user sessions are well secured and protected from any external session hacking and forgery.

Both the Union and State Governments in the Country are implementing various schemes of individual benefits in different sectors. In all such schemes direct benefit transfer is impressed upon so that the target group can derive maximum benefit out of the schemes. In all such cases this could be a replicable model since it ensures accuracy; transparency, cost minimization which are essential components of good governance.

1. ***Comparative Analysis of earlier Vs new system with respect to the BPR, Change Management, Outcome/benefit, Change in legal system, rules and regulations***

Implementation model of the scheme doesn’t usher any change in legal framework, Rules and Regulations. This is altogether a new scheme considering its magnitude, scale of operation etc. Hence comparative analysis of earlier system vs. new system is not applicable. However, it is pertaining to mention that eGovernance mechanism has been introduced, first time for such a scheme of in-kind distribution. Implementers at different levels were accordingly sensitized, oriented and trained to perform their respective roles through single window services. The mechanism shared work load and helped in quick and efficient implementation of the scheme. Generation of distribution record in electronic format, keeping records of distribution in electronic format indicates business process re-engineering to some extent since this is in departure of usual practice of keeping records manually. The changed procedure of implementation through egoverned mechanism was well managed by SOP based communication, user-friendly tutorials through Sabooj Sathi portal.

1. ***Value Delivered, feedback of stakeholders***

Governments, at all levels now impress upon Direct Benefit Transfer in case of individual benefit schemes. Accuracy, efficient implementation, cost effectiveness and transparency in implementation are the other indicators of good governance for such schemes. The e-Governance mechanism ensured all the parameters of good governance. Participation of various stakeholders at different levels through the common platform of e-governance mechanism is a step forward towards digital empowerment and inclusion.

Implementation model involved stakeholders like government officials, teachers, students and their parents at large. Involvement rather inclusion ensured transparency, accrual of benefit to the entire targeted student population. Proactive disclosure at every stage of implementation established greater faith in Governance. Stakeholders can interact, students can view status; citizen get to know whether benefits actually accrued to the target group.

1. ***Lessons learnt***

* **Roll out plan:** E Governance has been considered as the most dynamic component in the project planning. ‘Agile Development’ methodology followed for faster development of ICT based solution. The grassroots level managers interacted through ICT based support system (Voice, Email, and Video Conferencing). The stakeholders were given access to one module at a time for ease of work.
* **Inclusion:** The stakeholders, users were taken into confidence & empowered to take participate in crucial decisions and implementation. It developed sense of ownership among them.
* **Sustainability:** One key learning of the project is reliance on available Government resources. The entire ICT platform was managed through various teams of NIC, the e Governance major.
* **Social Audit:** The scheme has been designed keeping in mind ‘Social Audit’ as a key & core component. Details of each beneficiary including the frame number of the bi-cycle have been kept in the Sabooj Sathi Portal for public viewing which is unprecedented and can track each and every bicycle.

1. **Accomplishments:**

**Sabooj Sathi Online was selected for “Order of Merit Award”**

**by SKOCH Smart Governance Award 2017.**

**Sabooj Sathi Online has been conferred “Award of Appreciation”**

**by CSI Nihilent e-Gov Award, 2017.**

**Sabooj Sathi Online won National e-Governance Award (silver)**

**For innovative use of ICT by Central/ State Government PSU**