Breaking Thought Barriers

Geographical information System for School Mapping for Orissa Primary Education Programme Authority (OPEPA)

OPEPA has developed a large data base of Schools, Teachers and Children over last few years. This database is being used to Plan, implement and operationalised projects for Universalization of Elementary Education. The Government of India and State Government are jointly committed to this goal through the mega projects of Sarva Sikhya Abhiyan (SSA) and District Primary Education Programme (DPEP). OPEPA plans to use their data base on the maps where Schools are located through G.I.S. mapping of the Schools.

CSM TECHNOLOGIES

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Business Challenge

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The entire infrastructure available in about 77000 odd educational institutions along with their location (latitude and longitude) will be mapped. This project will start in March'06 and is expected to be completed by June'06. This will generate the infrastructure needs of an institution when linked to the children database of CTS. It will also prioritize the needs and help the planners to take decisions with respect to allocation of funds.
The difference between a map and GIS is seeing and understanding. The human mind is good at recognizing patterns. When one looks at data is a long table of rows and columns, she/he finds it difficult to comprehend and connect. On the other hand, when this is presented as a map, it is not only more aesthetic, but helps one to make connections and draw conclusions that one never saw before.
Today, as there is an overflow of information, we need accurate, reliable and timely information and better tools to manage them. This is where GIS scores over conventional maps, virtually all kinds of information may be put on a GIS Map layer after layer. And beauty is that one can choose which layer (information and statistics) one wants in whatever shape. Thus the potential of GIS is limited only by the imagination of the User.
The old adage "Better Information leads to Better Decisions" is true for GIS.

Solution

In the present project, it is proposed to determine the precise location of various educational institutions in the State. This will enable us to locate them on the GIS Maps and layer them with information about the school infrastructure, teacher position, student enrolment, distance from habitations, distance from nearest institutions etc.

The Project also has a component to map the available infrastructure in the educational institutions like availability of class room, size of class room, condition of building, availability of toilets, drinking water source, boundary wall, play ground, garden etc. Three digital photographs of the institution are also to be taken to layer them with the above information.
It is proposed to map nearly 75000 educational institutions located is about 40,000 villages/wards in the State in about 90 days time. The project is purposed to be outsourced to some agency.

A School mapping format has been designed to capture information about the location of the school and infrastructure available in the School. This mapping format is to be used for all State Government/Government Aided/municipal Schools of all levels i.e. Primary, Upper Primary and High Schools.

However, only latitude and longitude is to be recorded to G.O.I. Schools, Private Recognized and un-recognized Schools and all AIE and EGS Centers. In this, the EMIS master-list of Schools generated during Orissa Child Census 2005 is to be used as a base list for covering 100% Schools/educational institutions upto Secondary level. The important element of GIS implementation is the form and the format by which it is required to be filled. Given below is the derived format.

There are twenty nine entries to be filled in the form. The alphabets should be filled in **BLOCK Capital letters** only.

1. Name of District: The name of the district should be filled in the box provided
2. Name of Block/ULB: Respective name of the educational Block/ULB should be filled in the box provided.
3. Name of the School: Name of the School/Educational Institution should be filled in the box provided.
4. EMIS Code of the School: It should be filled in the box as per OCC 2005 Master list. The master list will be provided to the team by the DPC/Programmer.
5. Class Range from / to: It should be filled in the box from lowest class to highest class, e.g. for an UGUP School, the first box should be filled with ☐ ☐ and Second box with ☐ ☐

5 A. Type of School Management: The following codes should be filled in only for Govt./ Aided/ EGS Centers.

01	Govt. of India	21	DI/ CI managed	31	EGS – Govt.
11	Govt. of Orissa – SME	22	Mission managed	32	EGS - NGO
12	SCST	23	Minority managed	41	AIE Govt.
13	HUD	24	Privet managed	42	AIE NGO
14	W & CD dept			51	Pvt. recognised
15	Others dept			71	Pvt. Unrecognised
16	Labour dept direct				
17	Labour - NGO				

6. **Toilet availability:** The following codes should be filled in for the status of the toilet available.

    1. If the toilets are available is for both boys and girls separately or in an integrated manner
    2. If only boy's toilet is available
    3. If only girls toilet is available
    4. If no toilet is available
    5. If toilet is Defunct (Available nut not usable)

7. **Status of Water Supply to Toilet:** The following codes should be filled in for the status of the Water supply.

    1. If Pipe water supply is available
    2. If water is being carried to toilet by students
    3. If no Toilet tank is not being used

8. **Status of Electrification:** The following codes should be filled in for the status of the Electrification

    1. If the Schools is electrified with fans and lights
    2. If the School is electrified electrification with light only
    3. If no electrification is done but electricity is available nearby
    4. If electricity is not available

9. A. Status of Play ground: The following codes should be filled for the status of the Play ground

    1. If Play ground is available
    2. If Play ground is not available

9. B. If Column 9.A. is 1, then the Play ground size (Length in Meter, Width in Meter) should be filled in the boxes.

10. A. Sources of Drinking Water: The following codes should be filled in for the sources of drinking water.

1. if Bore well with motor and overhead tank is available
2. if Tube well with hand pump is available
3. if open well with motor and overhead tank is available
4. if only open well is available
5. if no source is available

10. B. If column 10.A is filled in with 5, then distance from nearest source of water outside the campus in meters should be mentioned in the boxes.

11. A. Status of Garden: The following codes should be filled in for the status of garden.

1. If space is available for garden
2. If space is not available for garden

11. B. If column 11.A is filled in with 1, then

1. if garden is developed
2. If garden is not developed

12. Status of library: The following codes should be filled in for the status of library.

1. If library is available, regular transaction of books is there
2. If library is available but no transaction of books
3. If library is not available

13. Availability of Kitchen shed for MDM: The following codes should be filled in for the Availability of Kitchen shed for MDM.

1. If the kitchen shed is with RCC roof
2. If the kitchen shed is with asbestos sheet.
3. If the kitchen shed is with GCI sheet.
4. If the kitchen shed is with thatched roof
5. If there is no kitchen shed.

14. Type of boundary wall: The following codes should be filled in for type of boundary wall

1. If boundary wall with barbed wire fencing is available
2. If boundary wall with masonry wall is available
3. If boundary wall with green fencing is available
4. If no boundary wall is available

15. Type of Gate facility: The following codes should be filled in for type of gate facility

1. If wooden gate is available
2. If concrete gate is available
3. If Iron gate is available
4. If no gate is available

16. Availability of Hostels: The following codes should be filled in for availability of Hostels

1. If yes
2. If No

17. Hostel capacity: Number of boarder e.g. If 40, it may be filled in as 040.

18. Child friendly element: The following codes should be filled in for Child friendly element.

1. For swing only
2. For slide only
3. For both swing and slide
4. Nothing

19. No. of computers available / in use: The number of Computers available in School may be filled in

/ In use – Number of computers actually being used may be filled in

20. Corr. Code: The number generated by GPS

21. Latitude (Northing): GPS reading in degree minute and second should be filled in the boxes.

22. Longitude (Easting): The GPS reading in degree minute and second should be filled in the boxes.

23. Image No.: In case of Government Schools and Aided Schools, three snaps from Front side, right side and left side should be taken. At the top consisting of boxes should be filled in 01, 02 and 03. The bottom row consisting of four boxes, the number generated in Digital camera should be filled in. In case of EGS Centers, only one snap from the front side should be taken. The snap number should be filled in as 01 in the first box. The other two boxes should left blank.

24. Time on GPS: The time of GPS should be filled in the boxes as seen in the GPS.

25. Date on GPS: The date on GPS should be filled in the boxes as seen in the GPS.

Note: *Column 20 to 25 is to be filled in by the Survey staff of outsourced agency*.

26. Total No. of completed building blocks: It should be filled in the boxes.

27. Status of Completed Building Blocks: There could be more than one building block in the School. For each building block the room details should be filled in as explained below.

A. Block No.: The blocks may be numbered from North West to South East corner of the School.

B. Room No.: Number of rooms of the block should be written in the boxes from North West to South East corner.

C. Room Condition: The following codes should be filled in for Room condition

1. Good
2. Needs minor repair (with expenditure should be less than Rs.10000.00)
3. Needs major repair (with expenditure between Rs.10,000 to 50,000
4. Beyond repair (may be dismantled)

D. Floor type: The following codes should be filled in for Floor type.

1. If the floor is plain cement concrete flooring
2. If the floor is mosaic
3. If the floor is tile flooring
4. If the floor is mud flooring
5. If other flooring is done (please specify at the bottom)

E. Wall type: The following codes should be filled in for Wall type.

1. If the wall is RCC column structure + Brick masonry
2. If the wall is load bearing Brick masonry wall
3. If the wall is made with brick and mud masonry
4. If the wall is made with mud wall
5. If the wall is made with any other materials (please specify at the bottom)

F. Roof Type: The following codes should be filled in for Roof type

1. If the Roof is made of RCC (Reinforced Cement Concrete)
2. If the Roof is made of ACS (Asbestos Sheets)
3. If the Roof is made of Tiled Roof
4. If the Roof is made of local Khapri roof
5. If the Roof is made of thatched roof
6. If the Roof is made of any other materials (please specify at the bottom)

G. Veranda width: The Veranda width in meters should be filled in the boxes.

H. Room Length: The length of the rooms in meters should be filled in the boxes.

I. Room width: The width of the room in meters should be filled in the boxes.

J. Use of Room: The following codes should be filled in for use of room.

1. If the room is used for instructional purpose
2. If the room is used for Office purpose
3. If the room is used for Library purpose
4. If the room is used for Store purpose
5. If the room is used for Laboratory purposes
6. If the room is used for Staff Common room
7. If the room is used for other purposes

If there is more than one room, the entry should be repeated for each room.

28. No. of Incomplete building blocks: The number of incomplete blocks should be filled in the boxes.

29. Status of Incomplete Building Blocks: The details should be filled in as instructed below:

A. Incomplete building blocks No.: The incomplete building block number should be filled in the boxes. Numbering should be made from the North-West corner to South-East corner in a continuous manner.

B. Stage of completion: The following codes should be filled in for stage of completion

1. Plinth
2. Lintel
3. Roof level
4. Roof cast
5. Others (please specify)

C. Number of Rooms: The number of rooms in the building should be filled in the boxes.

D. Length of the block: The length of the blocks in meters should be filled in the box

E. Width of the block: The width of the blocks in meters should be filled in the boxes.

F. Condition of construction: The following codes should be filled in for condition of construction.

1. If the construction is in process and condition is good.
2. If the construction is unfinished and not in process but condition is good
3. If the building can be restarted and completed with some minor repair
4. If the incomplete building is in a ruined state cannot be restarted with minor repair

G. Agency of construction: The following codes should be filled in for Agency of construction.

1. By BDO
2. By R.D. Department
3. By PWD Department
4. No information

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