

Using Computer Applications to Improve Environmental Management

2004 PNWIS ANNUAL MEETING
PORTLAND OR.



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Overview of Presentation

1. Quick overview of EMS & corporate management systems?
2. Why have an EMS?
3. Environmental & Corporate Management Systems
4. Why have EMS software?
5. What to look for in EMS software
6. How to start the process?
7. Demo of the eDICTS EMS Software



What is an EMS?

- An Environmental Management System is part of the overall [corporate] management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy.



EMS are Systems not Prescriptions

- ISO 14001 is Non-prescriptive, it does not set absolute limits for environmental performance
- The organization must however commit in their policy to
 - compliance with applicable legislation and regulation and
 - continual improvement.



What does an (ISO14001) EMS Include?

- The Standard consists of 6 main Activities:
 - Setting the Environmental Policy
 - Planning the System
 - Implementation the System
 - Checking & Correcting
 - Reviewing by Senior Management
 - Continual Improvement

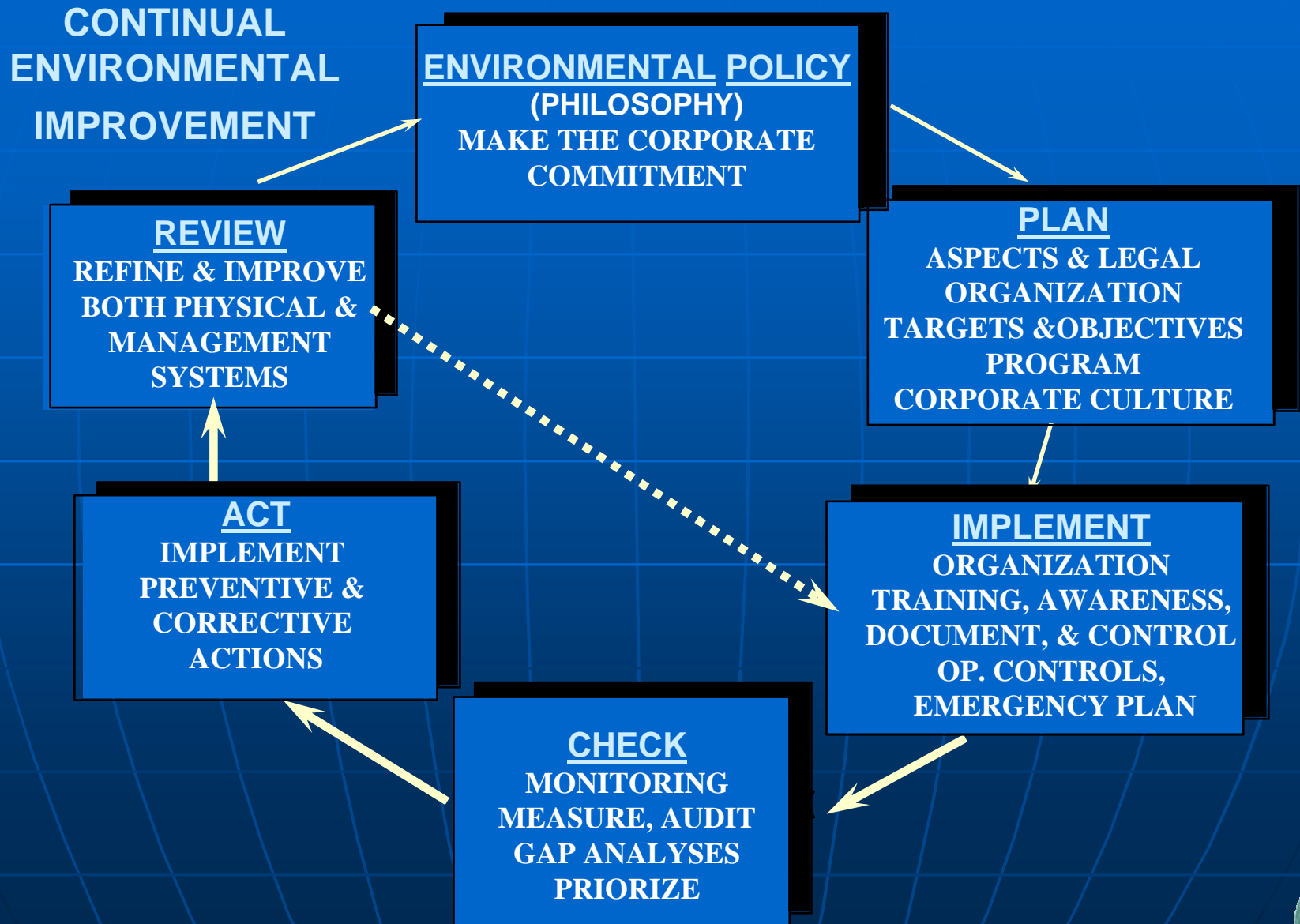


What does a Typical Management By Objectives (MBO) System Include?

- Includes
 - Setting Objectives
 - Assigning Resources
 - Implementing Programs
 - Measuring Progress
 - Taking Corrective actions
 - Reevaluation
- Sounds Like an EMS



AN EMS IS A TYPICAL MBO SYSTEM



SINCE AN EMS STRUCTURE IS A SIMILAR TO THE CORPORATE MS

- The implementation should focus on avoiding management duplication
- This can be achieved by careful review and understanding of the existing management structure
- And then integrating the EMS with the existing corporate management system



WHAT FUNCTIONS DOES AN EMS SERVE? or Why Have an EMS? ¹

It fulfills a variety of needs e.g.

To Fulfill **Business Needs**

- To Minimize Risk
 - Environmental
 - Risk of Spills (EP &R)
 - Insurance



Why Have an EMS? 2

Business Need To Reduce Costs

- Environmental Programs should have financial payback, achieved through:
 - loss prevention
 - reduced waste/special waste generation
 - improved environmental management efficiencies
 - improved production efficiencies e.g. by setting objectives and targets



Why Have an EMS ³

Business Needs To Secure Existing and New Markets

- Customer demands evolving for proof of environmentally responsible products and process
- The green movement demand for “eco-certification” growing rapidly



Why Have an EMS? 4

- **Legal needs**
 - Compliance with laws
 - Conformance with external commitments
 - Conformance with internal commitments
 - Permit Compliance
 - Codes and Standards



Why Have an EMS? ⁵

Shareholders' or Board Members' needs

- Demonstrate Due Diligence
 - Be able to prove all “reasonable” steps were taken to prevent and respond to an incident
 - Sabanes Oxly Act
- Mitigate Possible Penalties
- Indicate Real Asset (share) Value
 - Environmental Liabilities
 - Honest Balance sheet and share value



Why Have an EMS? ⁶

- Integrate or Support other Processes
 - Health and Safety OHSAS 18000
 - Quality ISO 9000
 - Financial, Fraud, Elevating Devices
- Respond to Board Mandate
 - Reduce non-compliance
- Improve Environmental Quality
 - on an ongoing or continuous basis
 - Be Proactive



Why Have an EMS 7

To Secure confidence of:

- employees
- shareholders, insurers and bankers
- communities (“a permit alone does not alone give a company the right to operate” - CEO, Sunoco)
- regulators (particularly with cutbacks and movement to “self-regulation”)



EMS & CORPORATE MANAGEMENT

- An EMS feeds into and is part of the corporate management system
- However, shown earlier Corporate and environmental management systems share many common elements
- there may be management duplication if the systems are not properly integrated.



EMS & CORPORATE MANAGEMENT

- Corporations have many activities, priorities, issues and that they have to manage.
- Currently many of these have their own management systems e.g..
 - EMS;
 - QMS;
 - OH&S MS
 - Insurance

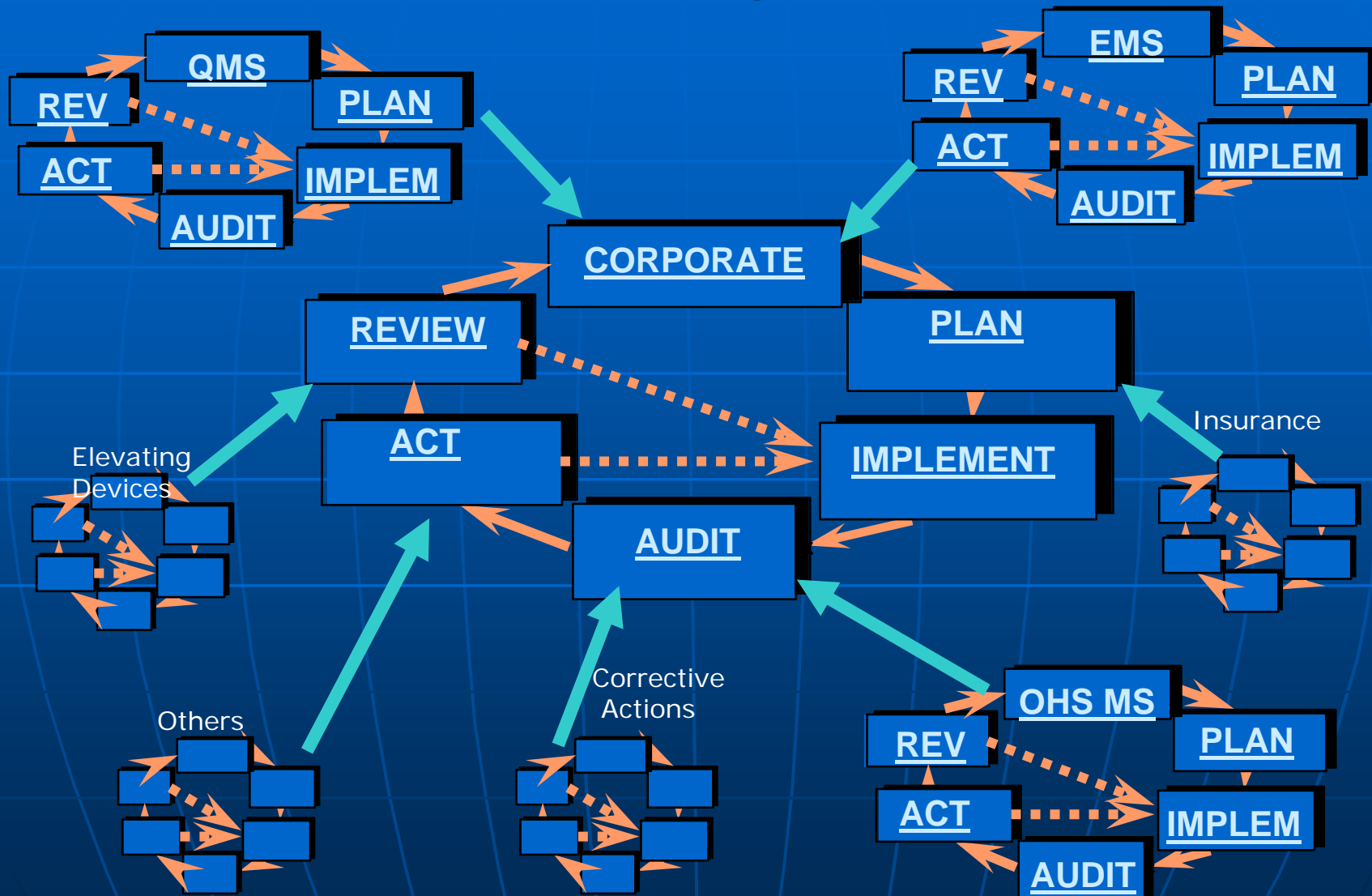


EMS & Corporate Management

- One approach is to just develop external management systems and then “attach” them to the main corporate management structure



External Management Systems?



How to get around this confusion?

- Such management systems can be cumbersome and lead to missed action items or incorrect priorities.
- Select or develop an EMS software system that:
 - Is integrated with existing systems
 - adds value to client



Why Have EMS Software?

- For the same reason we have accounting software; to provide better management and performance.
- With De-permitting (Gov't. cutbacks) Audits and EMS are replacing permits
- The Environment has now matured to a Core Management, Business, Board Room, Stakeholder, and Shareholder Issue



What would this a dream
EMS software do?



Software Should

- Achieve all the above EMS goals
- Save money through improved environmental performance and management
- plus



EMS Software Should

- Simplify and Improve:
 - Environmental management;
 - Updating and communicating of policies and procedures;
 - Tracking of audit reports and corrective actions;
 - Communication of environmental information (both internal & external to the corporation);
 - Changing and tracking environmental responsibilities;



EMS Software Should

- Fit in with Existing
 - Information Management Systems
 - Reporting Systems
 - PCAR Systems
 - Notification Systems
 - Auditing & Priority Systems
 - Regulatory Environment



EMS Software Should

- Offer Friendly interface/framework
- Have strong Audit capabilities
 - Allow for Checklists
 - Easy to Re-audit/Update (e.g.. next audit)
 - Create Custom Reports e.g.. Action Plans
 - Be fully customizable for different audits
 - Facilitate On-site Reporting
- Allow multi-user secure inputs



EMS Software Should

- Be more useful than a shelf full of manuals
- Facilitate
 - Searches and Sorts (Database)
 - Flexible Reporting & Export into different formats
 - Regulatory reporting
- Be fully customizable to each site
- Integrate with the client's management & IT systems LAN/WAN/Web



EMS Software Should

- Be Comprehensive and Easy to:
 - implement
 - use,
 - easy to keep current,
 - easy to update,
 - Train
- Be well supported
- Comply with international and accepted IT standards



HOW TO START?

■ Understand

- Who is the client?
- What are their:
 - Needs
 - Impacts and Issues (scale)
 - Objectives and goals
 - Resources



HOW TO START?

- Conduct a gap analysis that
 - Identifies the actions necessary to reach their goals
 - Focuses on solutions not non-conformances



HOW TO START?

- Develop the work plan or strategy that will meet the goals
- Agree on your role from coach to turnkey contractor.
- Are the goals consistent with the level of internal staff support and/or funding



HOW TO START?

- System Analysis:
 - Review and understand the existing MIS/Environmental systems
 - Integrate with their systems requirements building on strengths and correcting weakness e.g.
 - Incident non-conformance tracking systems
 - Emergency response
 - Training systems
 - Compliance tracking



Form a working partnership or team
Assign roles, responsibilities & objectives



BUILD THE SYSTEM



Typical EMS Implementation Activities

| ACTIVITY | ELAPSED TIMEFRAME | | | | | | | | | | | |
|--|-------------------|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | |
| I. Assessment & Preparation | | | | | | | | | | | | |
| Environmental Policy(s) | | | | | | | | | | | | |
| Gap Analysis (Audits) | | | | | | | | | | | | |
| Select the EMS Reps | | | | | | | | | | | | |
| EMS Rep Training | | | | | | | | | | | | |
| Identify Compatible Practices | | | | | | | | | | | | |
| Records Review/Register | | | | | | | | | | | | |
| Select the EMS Reps | | | | | | | | | | | | |
| II. Development (MSP &SOPs) | | | | | | | | | | | | |
| Risk Assessment | | | | | | | | | | | | |
| Environmental Aspects | | | | | | | | | | | | |
| Significance Ranking | | | | | | | | | | | | |
| Regulatory Tracking | | | | | | | | | | | | |
| Objectives/Targets/Programs | | | | | | | | | | | | |
| Roles & Responsibilities | | | | | | | | | | | | |
| Management System Procedures | | | | | | | | | | | | |
| Operational Controls (SOPs) | | | | | | | | | | | | |
| Training Needs & Tracking | | | | | | | | | | | | |
| New Project Review | | | | | | | | | | | | |
| Communication (Int. & Ext.) | | | | | | | | | | | | |
| Emergency Plan Maintenance | | | | | | | | | | | | |
| Document & Record Control | | | | | | | | | | | | |
| Non-Conformance Tracking | | | | | | | | | | | | |
| Audit Program | | | | | | | | | | | | |
| Management Review | | | | | | | | | | | | |
| III. Implementation | | | | | | | | | | | | |
| Employee Training | | | | | | | | | | | | |
| Document Distribution (SOP) | | | | | | | | | | | | |
| Document Distribution (MSP) | | | | | | | | | | | | |
| Contractor & New Hire Train. | | | | | | | | | | | | |
| EMS Operations Period | | | | | | | | | | | | |
| Conduct Internal Audit | | | | | | | | | | | | |
| Conduct Management Review | | | | | | | | | | | | |
| IV. Registration | | | | | | | | | | | | |
| Schedule Pre & Cert. Audits | | | | | | | | | | | | |
| Submit EMS Documents | | | | | | | | | | | | |
| Pre-Registration Audit | | | | | | | | | | | | |
| Corrective Action & EMS Ops | | | | | | | | | | | | |



The Future

- EMS are becoming increasingly important
- EMS software will become essential
- Integration with corporate management systems
i.e. OH&S, Quality, Financial
- EMS and Audits are becoming public documents
(e.g.. replacing permits)
- Trackable & Comparable (time & locale)
- Allow corporate wide access



Next Steps

- Evaluate where your current EMS is.
- Does it meet your current needs?
- Does it meet your future needs?
- Can it handle multiple
 - Sites?
 - Audit types?
 - Data inputs?
 - EMS team members?



Thank you

Paul Beauchemin P.Eng. EMS LA



Envirochem & Paul?

- Envirochem Services Inc.
 - Environmental Management and Software Co.
 - Staff includes auditors/engineers/scientists
 - Founded 1984
 - North Vancouver, Toronto, Nanaimo, Texas

- Paul Beauchemin
 - Partner and Director of Envirochem Services Inc
 - Certified Lead EMS auditor ~100s of audits
 - Technical Manager including Envirochem's software
 - Managed the development of Envir. and OHSAS MS
 - Chemical Engineer. (U of A)
 - Transaction Valuations and
 - Air Pollution Specialist



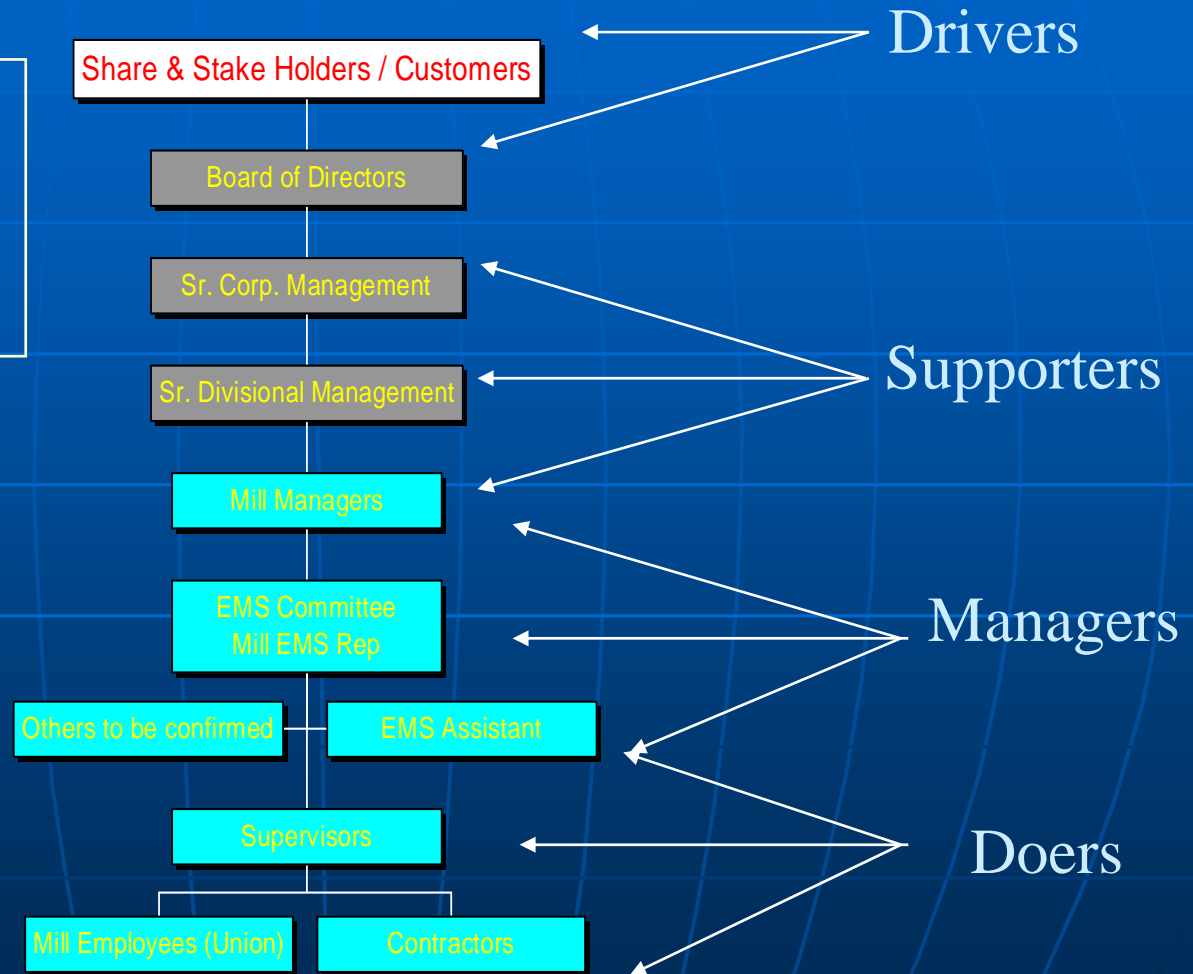
**THE FOLLOWING ARE
ADDITIONAL SLIDES WITH
SUPPORTING MATERIAL**



Organization

People & Organization & Responsibilities

PLAN
ORGANIZATION
ASPECTS & LEGAL
TARGETS & OBJECTIVES
PROGRAM
CORPORATE CULTURE



Who is Involved in making an ISO 14000 EMS work?

- Stock holders
- Stake holders (the community)
- Board of Directors
- Sr. Managers (Corporate & Divisional)
- Mill or Plant Manager
- EMS Representatives or Environmental Coordinators
- Supervisors
- All employees and Contractors

