

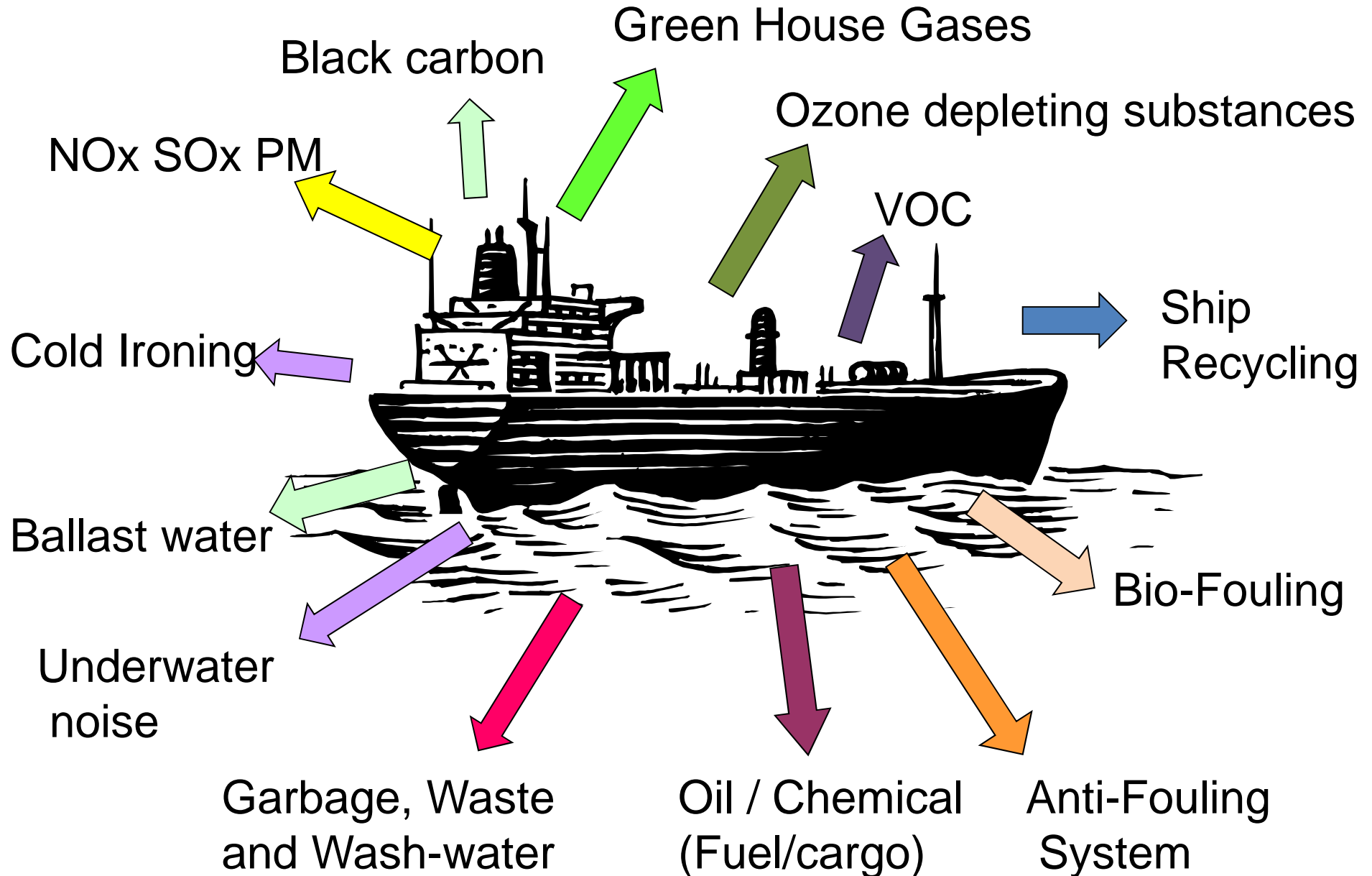
Risk management of ships Future of Ships

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Risk control of ships for environment protection

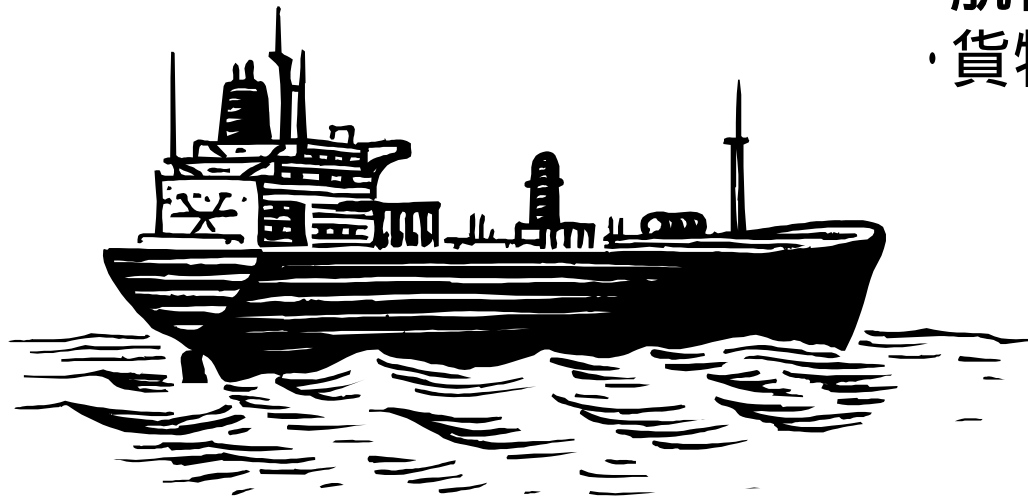
Preventive measures should be taken



船舶の安全

船体構造・船型設計

- ・健全性 Integrity
- ・耐航性 Maneouvability
- ・復原性 Stability
- ・防火 Fire Protection



海上保安

- ・船舶動向の把握
- ・海賊対策

航行の安全

- ・衝突予防－自船位置の表示
- ・航行分離帯－航行管制
- ・貨物の安全(固定、安定)

非常時の対応

- ・遭難及び非常時通信
- ・海上安全情報

海上での生存

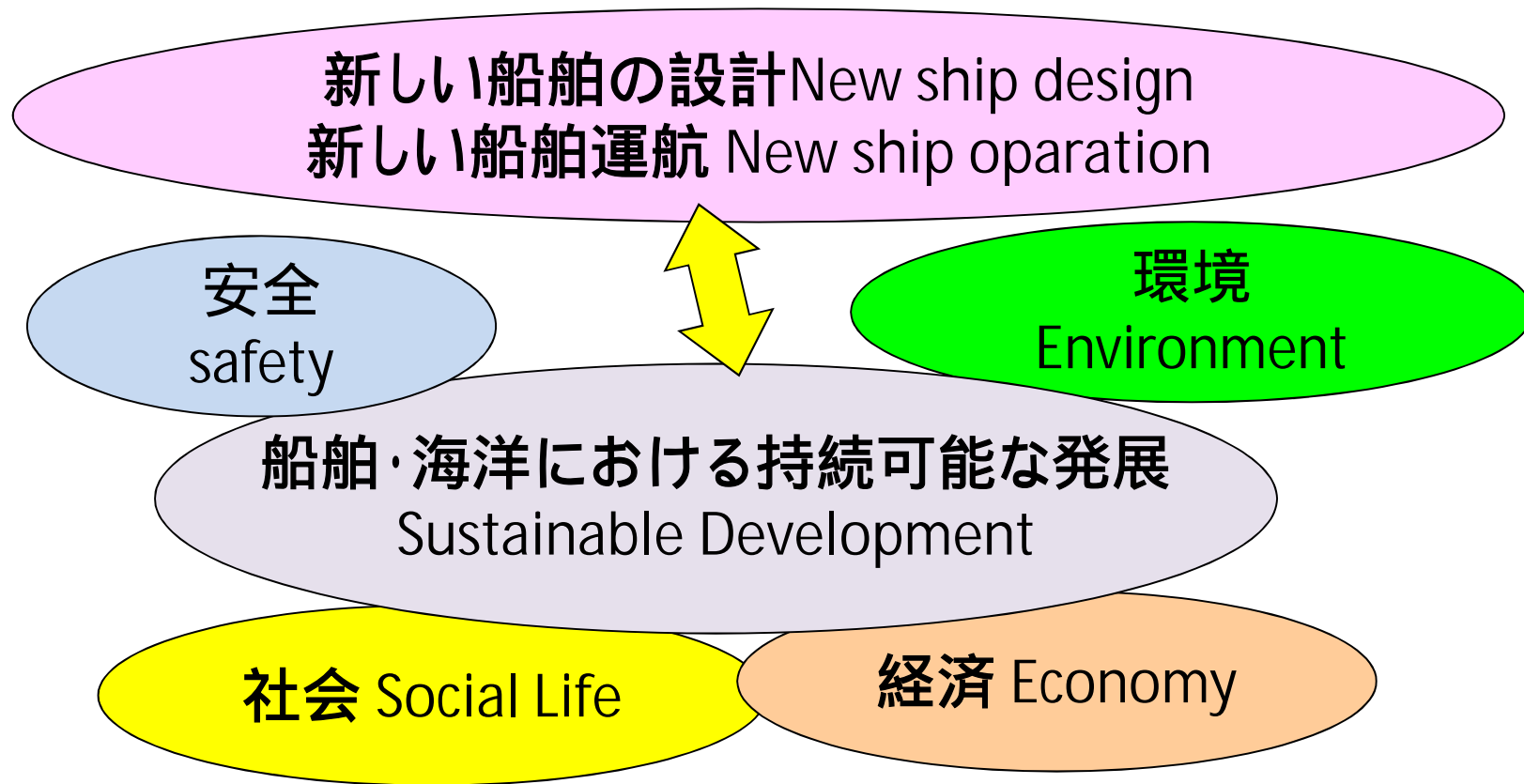
- ・救命設備
- ・搜索救助

Requirements on future ships

- Marine environment protection
 - Prevention of oil and cargo spill (may require heavier and robust hull and result in increase of hull weight and reduction of cargo capacity)
 - Reduction of NOx and GHG Emission
 - Reduction of fuel consumption and EEDI
 - Reduction of NOx emission (may need additional energy)
 - Use of low sulfur fuel
 - Ballast water treatment (may need additional energy)
 - Treatment of onboard garbage and cargo residue
- Safer ships
 - Robust hull (may result in increase of hull weight and reduction of cargo capacity)
 - Closer communication with land-based station (ships are watched anywhere at sea)
- Sustainable ships

What will be future ships?

- There are methodology, such as FSA (RCO, CBA), to obtain optimum solutions on each problem or requirement.
- As of today, there is no methodology or technology for seeking optimum design or optimum regulation in light of holistic harmonization among these requirements.
- Requirements will be described in functionality.
- Designers need to design optimum ships in light of various functional requirements (goal-based).



レポート課題

船舶のリスクと持続可能な発展に関する考察、

あるいは

持続可能な発展の中での船舶の姿(将来技術、安全と環境保全の両立と
バランス)

WORD文書の場合はA4で2枚程度、Power pointの場合はslide 2-4枚

期限:2016年1月末; 氏名をファイル名に付けて、メールで送ってください。

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