

ZERO

SYSTEM



for LIVESTOCK MANURE

 enbio

TABLE OF CONTENTS



03 About Us	14 Application
05 Zero System Introduction	15 Result
06 No Discharge & Reuse	16 4 Purposes & Types
07 What is Zero?	17 Type 1
08 Zero System	18 Type 2
09 Patents	19 Type 3
11 Zero - Livestock Manure	20 Type 4
12 Key Benefits	21 Photos
13 Flow Chart	22 Contact us

ABOUT US



ENBIO.Co.Ltd is bio-technology company from Korea, which developed innovative and eco-friendly wastewater treatment technology and system. The system has enabled the complete biodegradation of organic waste through special microorganisms and specialized system developed and patented by the company, which results in clean, reusable water with no discharge.

Through pioneering products such as self-recycle flush toilet and wastewater treatment & reuse system, ENBIO is working hard to help save water resource, prevent pollution and recover our environment.



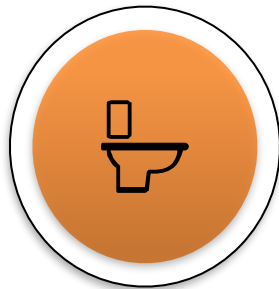
**z e r o
s y s t e m**

ZERO SYSTEM

complete biodegradation of organic waste

Zero system is innovative and eco-friendly wastewater treatment system through Enbio's own developed special mixture of microorganisms and specialized system to multiply these special microorganisms' natural ability to completely biodegrade the organic waste.

All the organic waste in the wastewater breaks down into water (H₂O) and gas (CO₂, N₂, etc) through biodegradation and redox process. There is no sludge!



ORGANIC WASTE



REDOX +
BIODEGRADATION



H₂O
GAS

ZERO SYSTEM

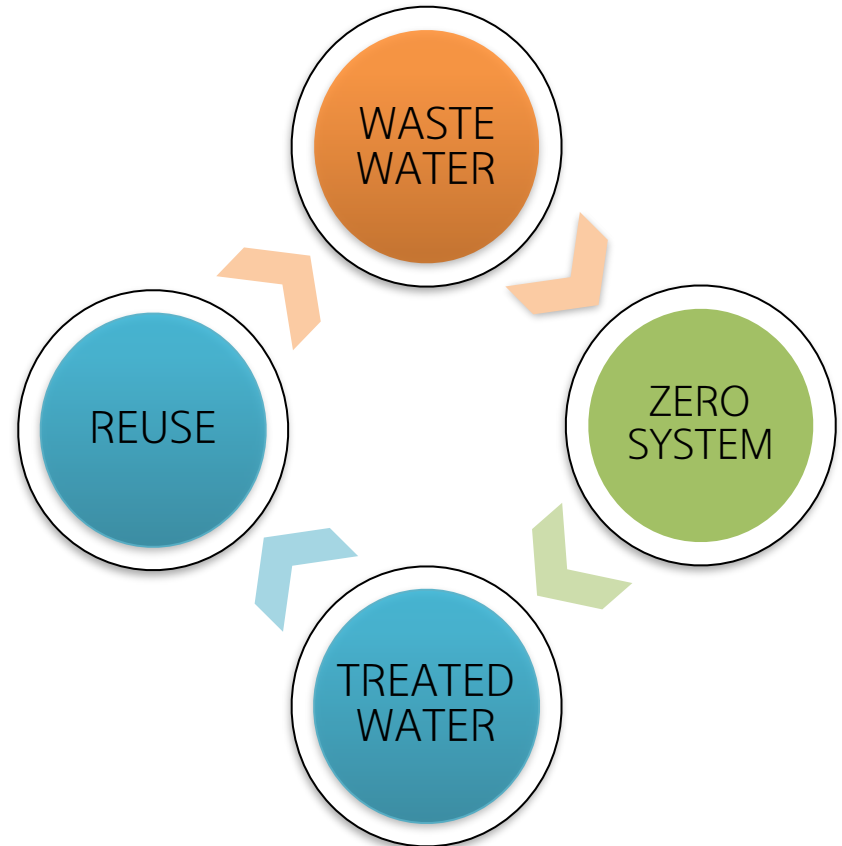
no water discharge system

reusing the treated water

Zero system treats wastewater and enables the **treated water to be reused continuously without any discharge.**

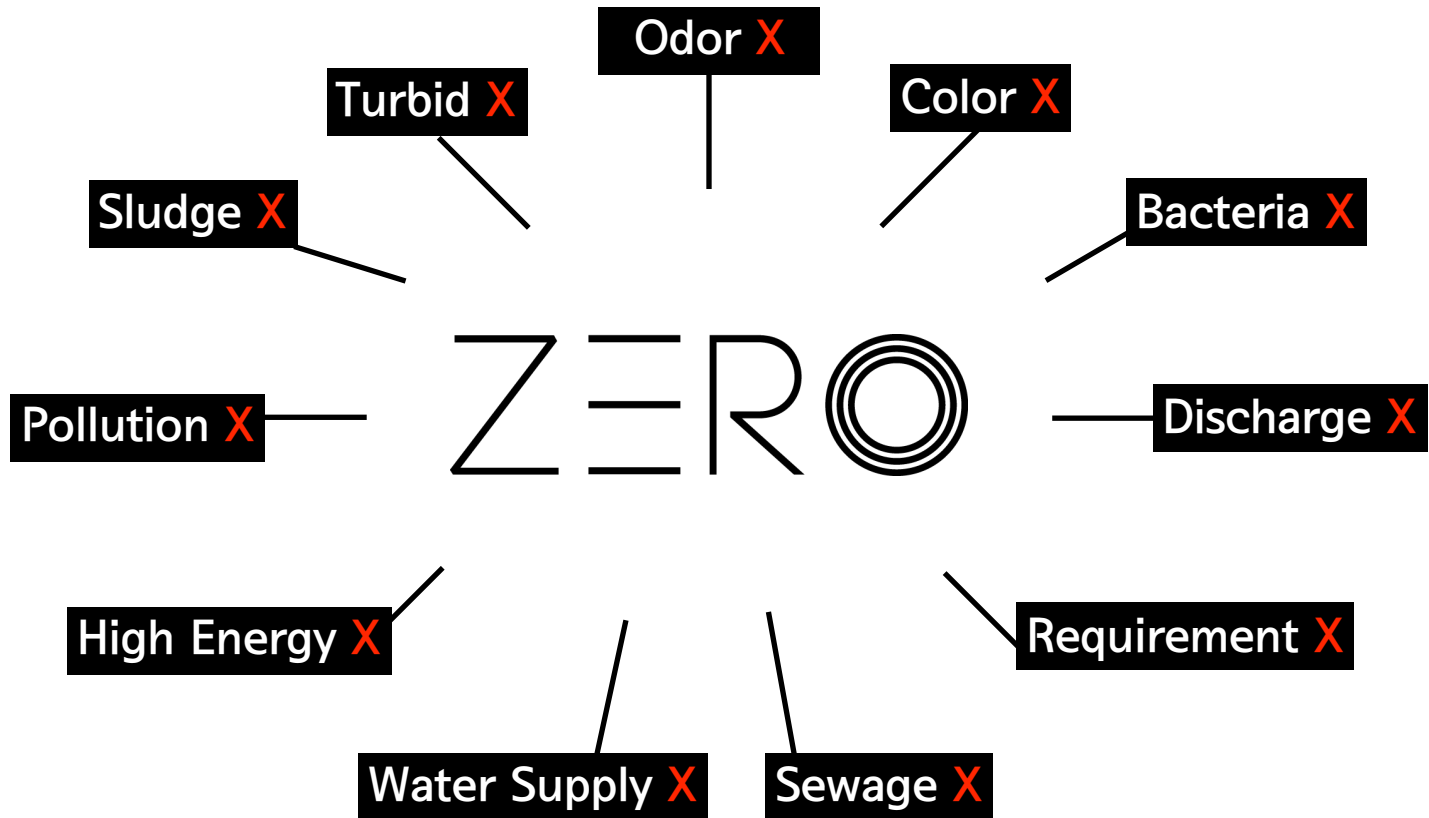
This no water discharge system not only saves water resource and help the water scarcity issue over the world, it also prevents environmental pollution from discharging pollutants out to the nature.

no pollution, save water!



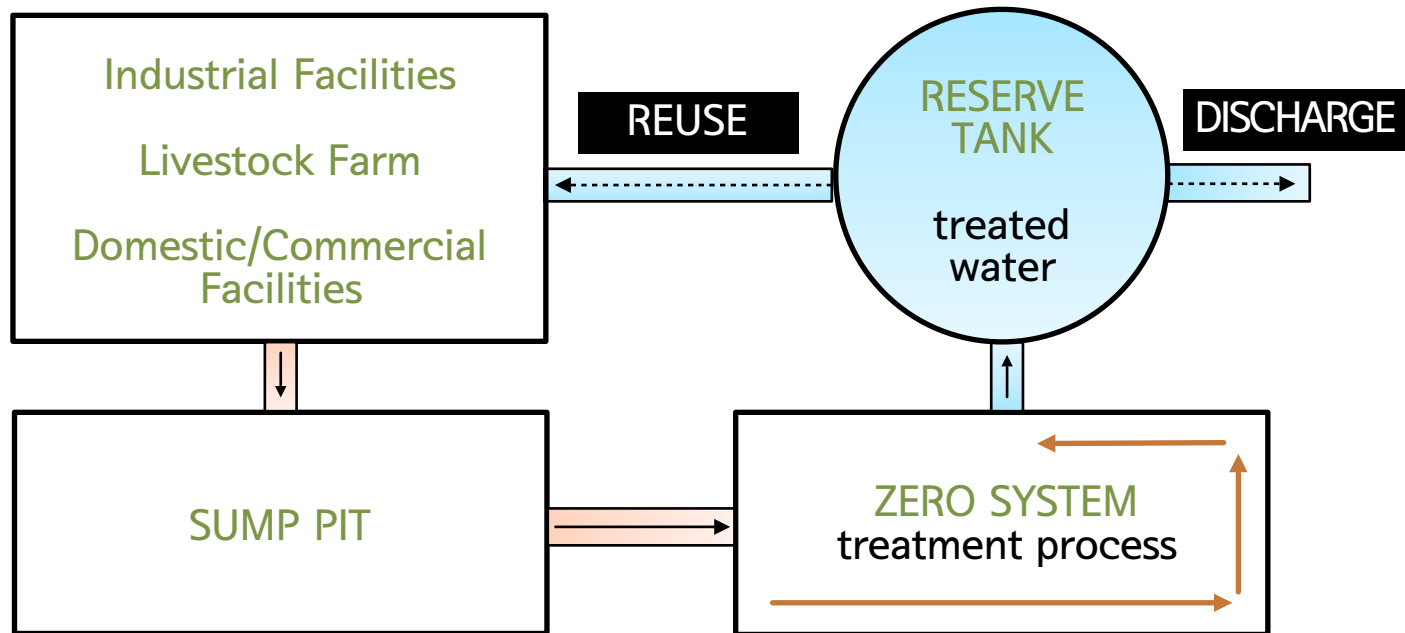
ZERO SYSTEM

all these are ZERO!



ZERO SYSTEM

BASIC FLOW CHART



ZERO SYSTEM

PATENT IN KOREA, JAPAN, PCT APPLIED



특허증
CERTIFICATE OF PATENT

특허 제 10-1042543 호 (PATENT NUMBER)
등록번호 (REGISTRATION NUMBER) 제 2010-0139617 호
출원일 (FILING DATE) 2010년 12월 30일
등록일 (REGISTRATION DATE) 2011년 06월 13일

발명의명칭 (TITLE OF THE INVENTION)
미생물을 활용한 오세수 정화 장치

특허권자 (PATENTEE)
주식회사 연바이오 (180111-0*****)
부산광역시 동구 초량동 1200-2

발명자 (INVENTOR)
김세광
일본 오사카부 사카시 사카이구 나카고요초 1초메 4-7 라
이브라이즈 203호

위의 발명은 「특허법」에 의하여 특허등록원부에 등록
되었음을 증명합니다.
(THIS IS TO CERTIFY THAT THE PATENT IS REGISTERED ON THE REGISTER OF THE KOREAN
INTELLECTUAL PROPERTY OFFICE.)

2011년 06월 13일

특허청
COMMISSIONER, THE KOREAN INTELLECTUAL PROPERTY OFFICE



特許証
CERTIFICATE OF PATENT

特許第5557301号 (PATENT NUMBER)

発明の名称 (TITLE OF THE INVENTION)
汚浄水浄化システム

特許権者 (PATENTEE)
大韓民国, アサン, カンヨクシ, トングチョリ
ヤンロ, 13ボンギル78
国籍 大韓民国
金 誠一

発明者 (INVENTOR)
金 誠一

出願番号 (APPLICATION NUMBER)
特願2013-273733

出願日 (FILING DATE)
平成25年12月30日 (December 30, 2013)

登録日 (REGISTRATION DATE)
平成26年 6月13日 (June 13, 2014)

この発明は、特許するものと確定し、特許原簿に登録されたことを証する。
(THIS IS TO CERTIFY THAT THE PATENT IS REGISTERED ON THE REGISTER OF THE JAPANESE PATENT OFFICE.)

平成26年 6月13日 (June 13, 2014)

特許庁長官
(COMMISSIONER, JAPANESE PATENT OFFICE)

羽藤秀雄



PATENT COOPERATION TREATY PCT/KR2014/010148

ADVANCE E-MAIL

From the INTERNATIONAL BUREAU

PCT
NOTIFICATION OF RECEIPT OF
RECORD COPY
(PCT Rule 24.2(a))

To
LEE, Du-Han
(Yook-sam-dong) CH B/D 5F,
5-4, Nomsyeon-ro 75gi,
Gangnam-gu,
Seoul 135-825
REPUBLIQUE DE CORÉE

Date of mailing this record copy: 03 November 2014 (03.11.2014)	DISPATCH NOTIFICATION
Applicant's name, the address: PCT/14-4023	International application No.: PCT/KR2014/010148

The applicant is hereby notified that the International Bureau has received the record copy of the international application as detailed below.

Names of the applicant(s) and State(s) for which they are applicant(s):
KIM, Sung-II (all designated States)

International filing date: 28 October 2014 (28.10.2014)
Priority date(s) claimed: 30 September 2013 (30.09.2013)
Date of receipt of the record copy by the International Bureau: 31 October 2014 (31.10.2014)
List of designated Offices:

AP, BW, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW
EA, AM, AZ, BY, KG, KZ, RU, TJ, TM
EP, AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR
OA, BF, BI, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG
National: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TI, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

ATTENTION: The applicant should carefully check the data appearing in this Notification. In case of no discrepancy between these data and the information in the international application, the applicant should immediately inform the International Bureau. In addition, the applicant's attention is drawn to:
- any limits for copy fees in the national phase (see www.wipo.int/pct/central/en/index.html#intnational/PCT_Application's_Guide_National_Phase, especially Chapters 3 and 4)
- requirements regarding priority documents (if applicable) (see PCT-Applicant's Guide, International Phase, paragraph 5.177)

A copy of this notification is being sent to the receiving Office and to the International Searching Authority.

The International Bureau of WIPO 48, Châssais des Bains 1211 Geneva 20, Switzerland Telephone No. +41 22 818 70 00 Fax No. +41 22 818 70 00 Year 14/15 (2014-2015)	Authorized officer: Moon Kiwhan e-mail: gpi1@ip.wipo.int Telephone No. +41 22 338 74 61 FIDAL/VISA/RW/WWO
---	---

A photograph of two piglets lying on a grassy field. The piglets are white with pink ears and snouts. They are positioned in the center of the frame, with their heads close together. The background is a blurred green field under a bright sky. A semi-transparent white rectangular box is overlaid on the piglets, containing the text 'zero livestock manure' in a bold, black, sans-serif font.

**z e r o
l i v e s t o c k
m a n u r e**

ZERO SYSTEM FOR LIVESTOCK MANURE

innovative livestock manure treatment & recycle system

FROM MANURE TO CLEAN WATER

- Zero system for livestock manure is optimized for livestock manure and wastewater treatment and reusing the treated water without water discharge (discharge also possible).
- Because the organic waste is completely biodegraded, there is absolutely no odor, no color, no sludge, no extra supply of water. Hence there is no need for extra collection process or cost for sludge.
- Other methods have not perfected in solving problems such as odor and sludge and livestock industry needs new solution for stricter discharge guidelines for wastewater discharge.
- Zero system perfectly solves these problems and prevents environmental pollution from source and saves water resource.
- Treated water from Zero system can be reused for drinking water for livestock, cleaning purpose, etc.

KEY BENEFITS

incomparable effects, benefits and cost!



ECO-FRIENDLY

prevent environment pollution
no sludge
save water resource
no chemicals used



EFFECTIVE

no color
no odor
no harm
no waste



EFFICIENT

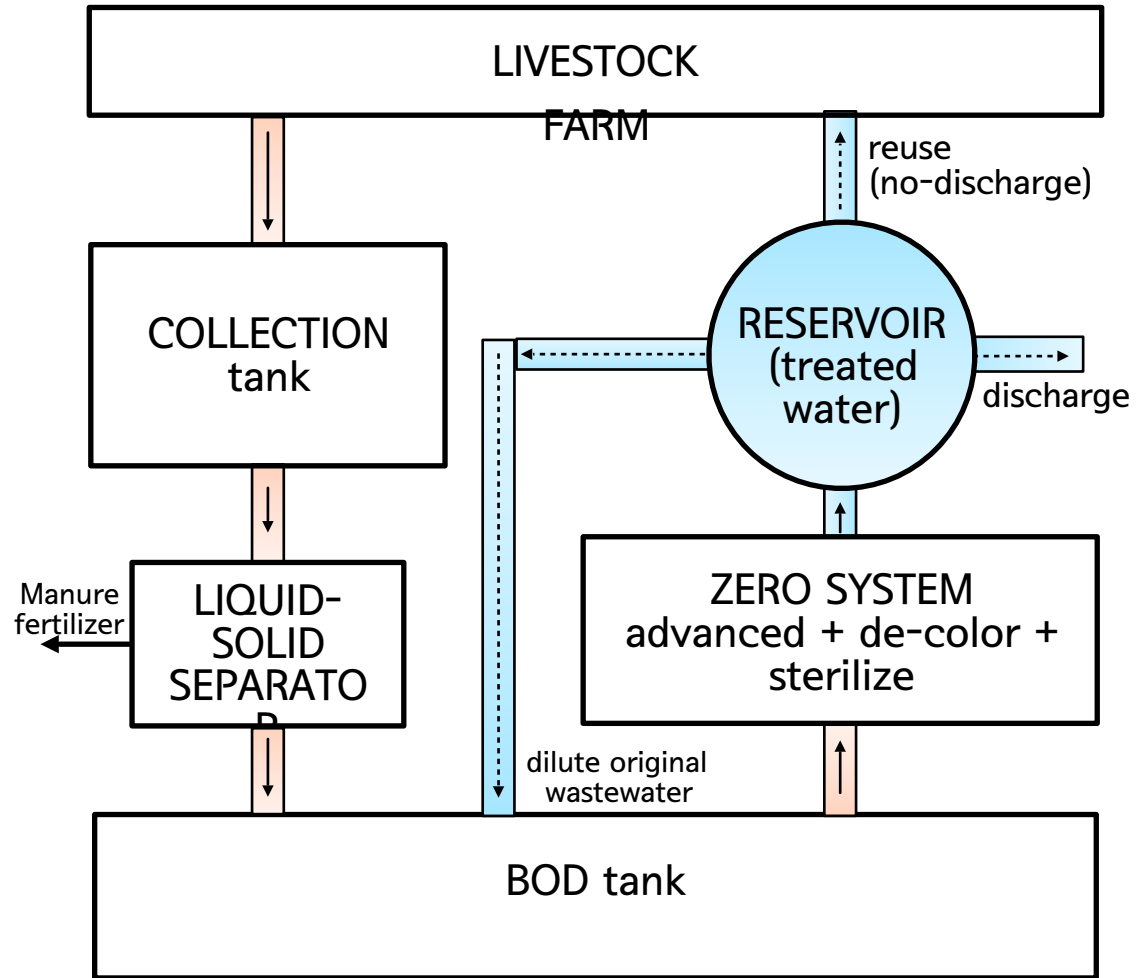
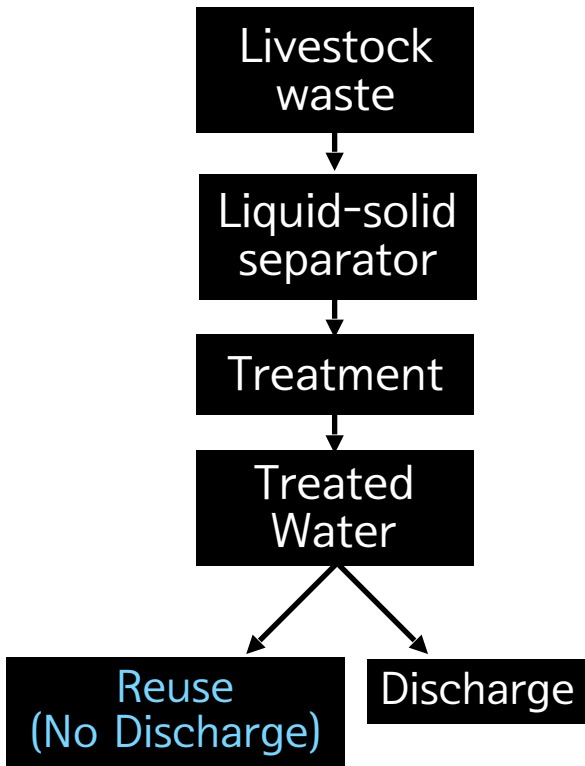
automatic
compact design
can assemble at the site



ECONOMIC

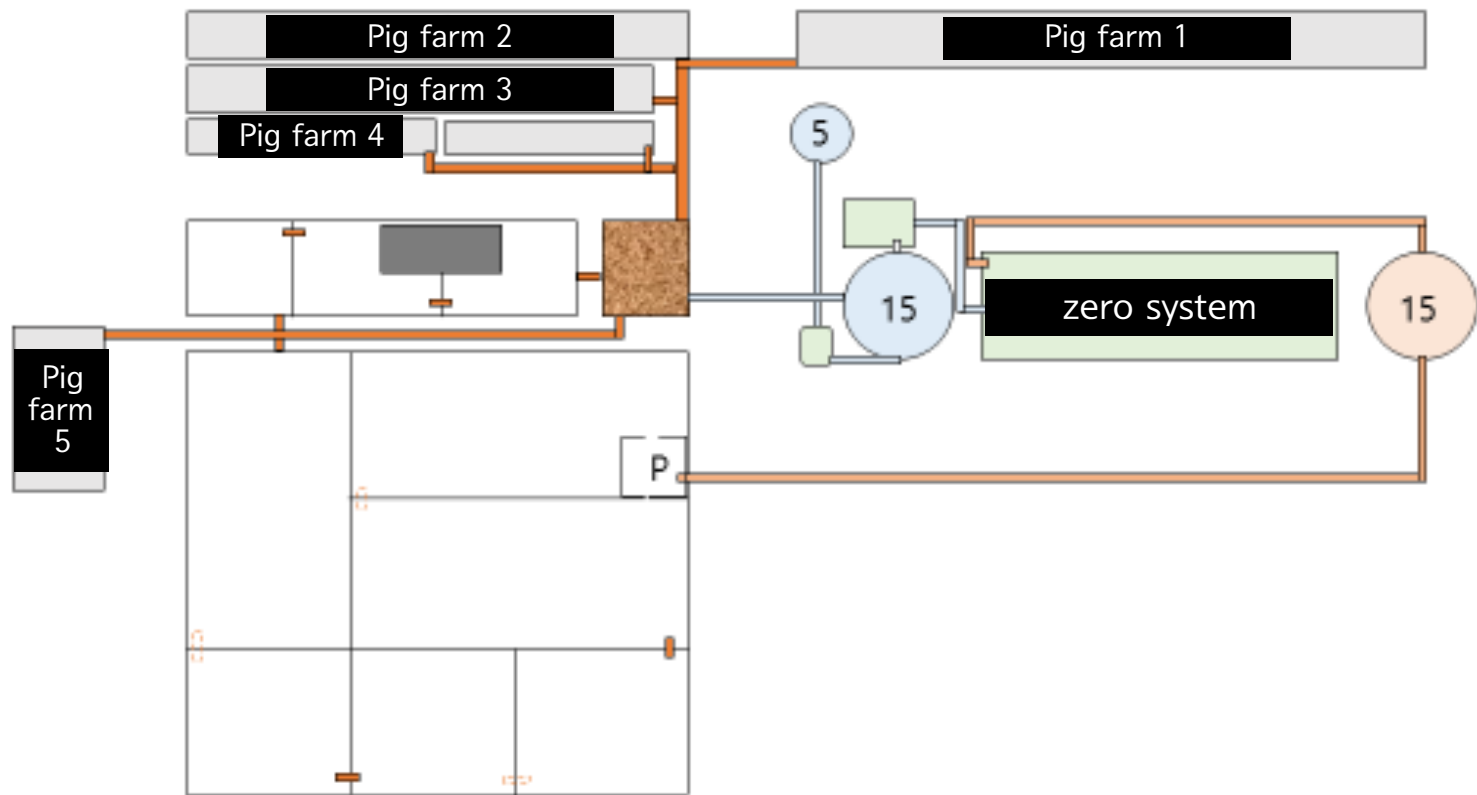
economic price
no water supply or sewage
no need to pickup sludge
energy-efficient

FLOW CHART



APPLICATION (KOREA)

ZERO SYSTEM Plot Plan for 1400 pigs in Kyungsan, Kyungbuk, Korea



TREATED WATER ANALYSIS

ZERO SYSTEM treated water test result from Korea & Vietnam

item	Result	
	Korea	Vietnam
BOD (mg/L)	3	2.5
COD (mg/L)	12.4	2.9
SS	5.5	4.8
T-N (mg/L)	11.6	12.037
T-P (mg/L)	8.82	9.077
PH	-	7.1

Test results show the Zero system treated water not only passes discharge guidelines but also safe for reuse.

4 PURPOSES & TYPES

ZERO SYSTEM is custom built according to the treatment amount per day

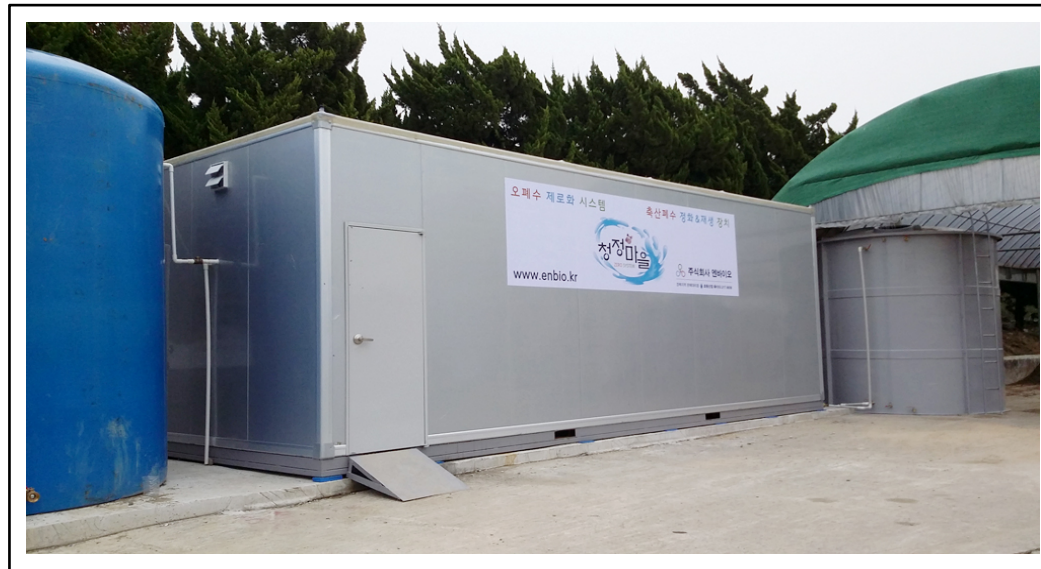
1. Livestock wastewater Treatment & Recycle System (ZP)
2. Deodorization of Liquid Fertilizer (ZP-1)
3. Deodorization of Manure Fertilizer (ZP-2)
4. Adding advanced treatment or upgrading the previous treatment system (ZP-3)



TYPE (1)

Livestock wastewater Treatment & Recycle System (ZP)

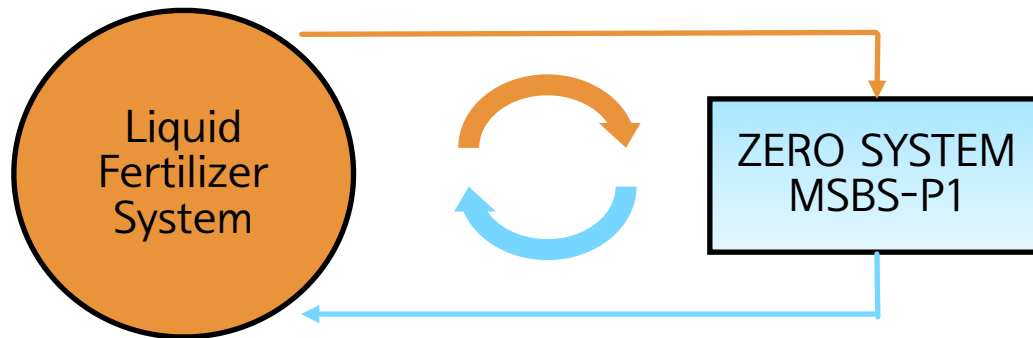
- For reuse of treated water from zero system so there is no discharge and saves water
- Can also apply for discharge permit to discharge



TYPE (2)

Deodorization of Liquid Fertilizer (ZP-1)

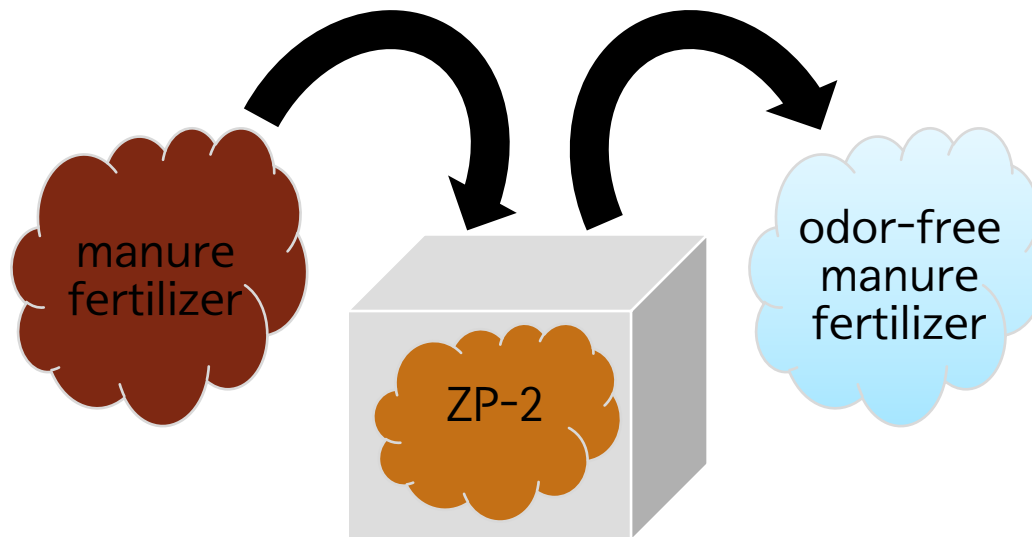
breaking down the odor (liquid treatment)



TYPE (3)

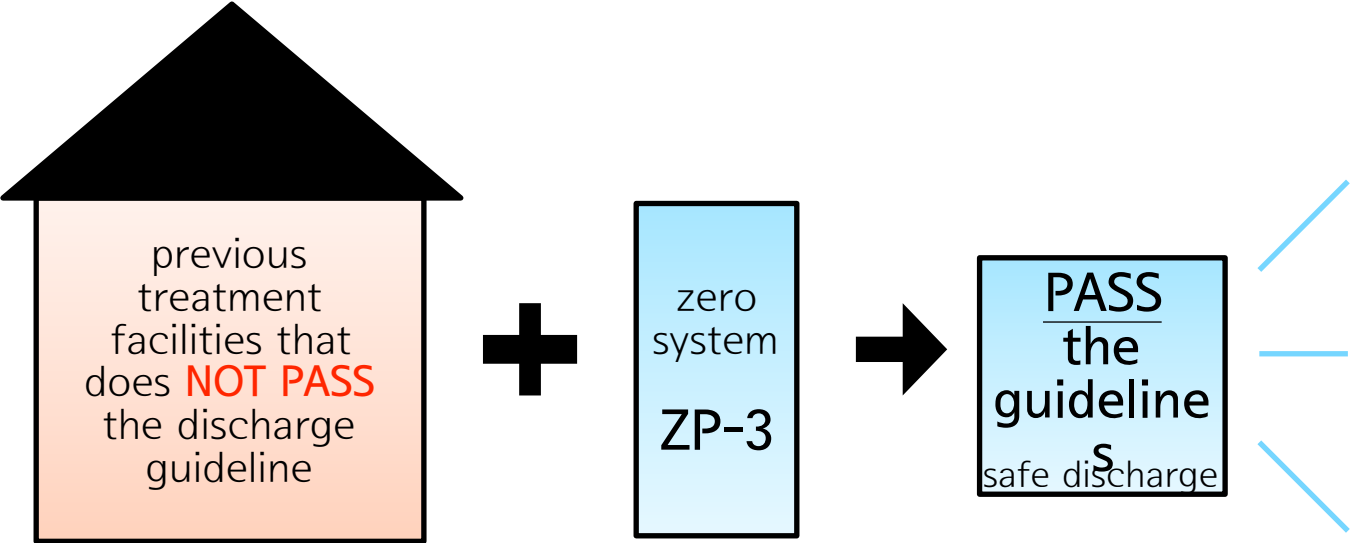
Deodorization of Manure Fertilizer (ZP-2)

breaking down the odor (solid treatment)



TYPE (4)

Adding advanced treatment or upgrading the previous treatment system (ZP-3)



already have treatment system that does not meet the discharge guideline?
simply attached zero system to bring treated water quality up to pass the guideline


PHOTOS






 9, 33 Gonghangap-gil, Gangseo-gu, Busan, Korea

 T: 051-900-5881 F: 051-919-5882

 info@enbio.kr

 www.enbio.kr